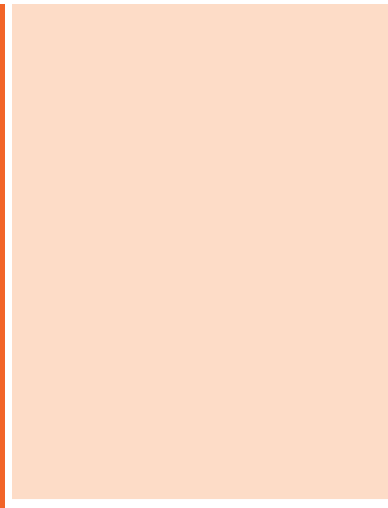


Stepper Motors

Stepper Motor and Driver Packages

DC Input



- 0.36°/Geared *α*STEP AR Series
- 0.36°/Geared *α*STEP Absolute AZ Series
- 0.72°/0.36°/Geared CRK Series
- 1.8°/Geared RBK Series
- 1.8°/0.9°/Geared CMK Series
- 0.72° All-in-One PKA Series



Overview, Product Series

AC Input Motor & Driver

0.36°/Geared *α*STEP AR

0.36°/Geared *α*STEP Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared *α*STEP AR

0.36°/Geared *α*STEP Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

0.72°/0.36° PKP

Accessories

	Page
0.36°/Geared <i>α</i> STEP AR Series	A-136
0.36°/Geared <i>α</i> STEP Absolute AZ Series	A-196
0.72°/0.36°/Geared CRK Series	A-206
1.8°/Geared RBK Series	A-214
1.8°/0.9°/Geared CMK Series	A-220
0.72° All-in-One PKA Series	A-226

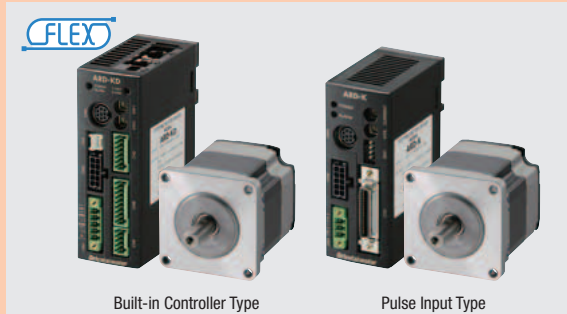
0.36°/Geared Stepper Motor and Driver Package α STEP AR Series

<Additional Information>

- Technical reference → Page H-1
- Regulations & Standards → Page I-2



● For detailed information about regulations and standards, please see the Oriental Motor website.



View Expanded Product Information, Specifications, CAD, Accessories & more online. Visit www.orientalmotor.com/catalog or use the QR code and select "AR Series DC Power Supply Input".

A closed loop stepper motor series that substantially reduces heat generation from the motor through the use of high-efficiency technology. The driver is a highly functional, compact DC power supply input type.

- High Reliability with Closed Loop Control
- High Efficiency Technology Reduces Motor Heat Generation
- Capable of High Positioning Accuracy
- 2 Driver Types to Choose from
Built-in Controller Type **FLEX** / Pulse Input Type

FLEX What is FLEX?

FLEX is the collective name for products that support I/O control, Modbus (RTU) control, and FA network control via network converters. These products enable simple connection and simple control, shortening the total lead time for system construction.

Features

High Reliability with Closed Loop Control

For details, refer to Page A-9 "Overview of Closed Loop Stepper Motor and Driver Packages α STEP".

Continuous Operation Utilizing High-Efficiency Technology

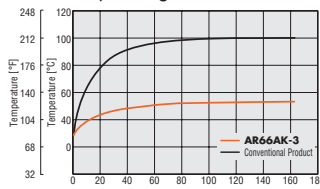
● Lower Heat Generation

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

● Temperature Distribution by Thermography



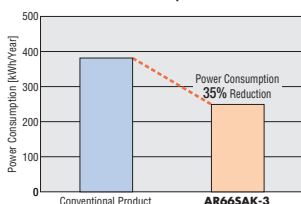
● Motor Case Temperature under Same Operating Conditions



Comparison under the Same Conditions.

● 35% Less Power Consumption* than Conventional Oriental Motor Products Due to Energy-Saving Features

● Power Consumption

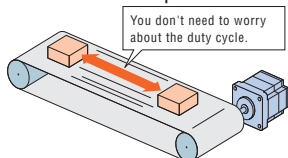


*Operating Condition

- Speed: 400 r/min, load factor 50%
- Operating Time: 24 hours of operation, 365 days/year (70% operating, 25% stand-by, 5% off)

● Continuous Operation (Operation at a High Duty Cycle)

The AR Series can be operated at high frequency. The motor can operate continuously.

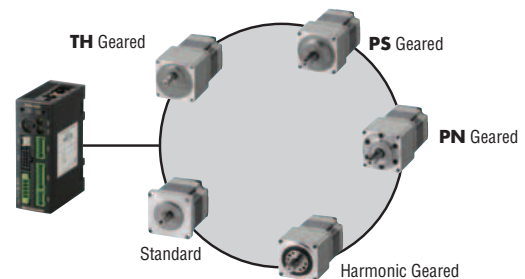


Note

- If the motor is operated continuously, a heat sink of a capacity at least equivalent to an aluminum plate with a size of 100×100 mm (3.94×3.94 in.), 6 mm (0.24 in.) thick is required.

A Single Driver to Support a Variety of Motors

The driver is equipped with an automatic recognition function, which recognizes the attached motor. Various types of motors, such as the standard type and the geared type, can be attached to a single driver. Therefore, there is no need to change the driver to match the motor to be attached. Maintenance is easier.



Products Equipped with the AR Series

All of the products equipped with the AR series feature standardized controllability.



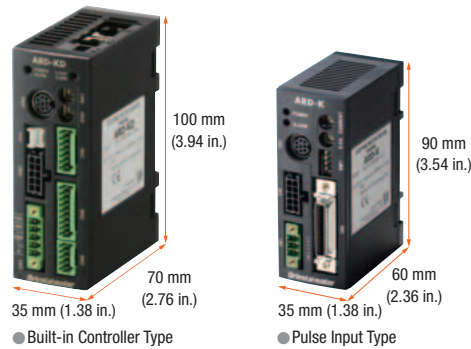
Same Movement!



Highly Functional, Compact Driver

● Compact DC Power Supply Input Driver

This is a compact driver. This contributes to space saving for the control box and equipment. The driver can be installed directly to a DIN rail, so no screws are necessary.

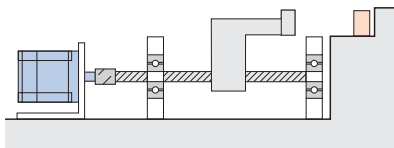


● Push-Motion Operation

A force is continuously applied to the load. When contact is made with the load, the motor switches to push-motion operation and applies constant torque to the load.

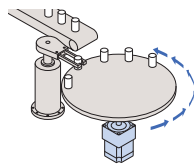
Note

- Push-motion operation requires a data module **OPX-2A** (sold separately) or data setting software **MEXE02**.
- Do not perform push-motion operation using geared motors. Doing so may damage the motor or gear unit.



● Position Control in the Same Direction

The round feature enables you to control positioning even in an application where positioning is repeated in the same direction. (Available only on the built-in controller type.)



*When building an absolute system, the accessory battery is necessary (sold separately).

● Also Supports Absolute Systems

You can build an absolute system that detects absolute positions by connecting the accessory battery (sold separately). (Available only on the built-in controller type.)

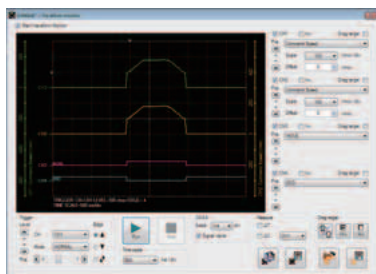


● Battery Set (Sold separately)

Easy Setting and Easy Monitoring

By using the **MEXE02** data setting software, a computer can be used to change operating data or parameters, as well as to perform monitoring.

● Operating Status Waveform Monitoring (**MEXE02**)

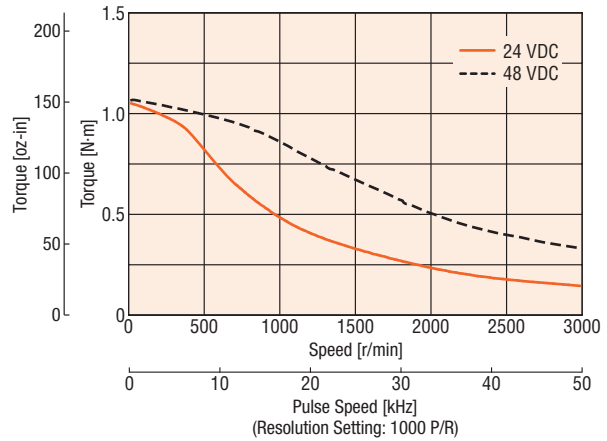


A highly efficient monitoring function that allows for easy identification of the motor and I/O status at a glance.

● 48 VDC Compatible

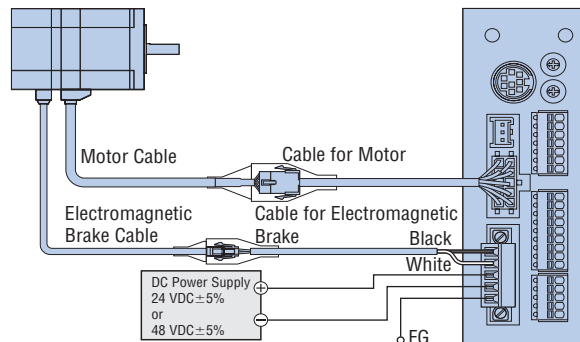
The motor runs on a 24 VDC or 48 VDC power supply. Choose the power supply that you have available. The torque is higher when 48 VDC is used rather than 24 VDC. [Frame size 28 mm (1.1 in.) only accepts 24 VDC input.]

AR66AK-3



● Automatically Controlled Electromagnetic Brake

For built-in controller types, customers need not provide a separate circuit to control the electromagnetic brake. The electromagnetic brake is released when the motor is excited (= the current ON input is turned ON), and activated to hold the load in position when the excitation is cut off (= the current ON input is turned OFF). (Available only on the built-in controller type.)



● Up to 30 m (98.4 ft.) Wiring Distance Between Motor and Driver

This series uses an included cable or accessory cable that can extend the wiring distance between the motor and driver up to 30 m (98.4 ft.). Extension cables and flexible extension cables are available as accessories (sold separately).

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/Geared **RKII**

DC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/0.36°/Geared **CRK**

1.8°/Geared **RBK**

1.8°/0.9°/Geared **CMK**

0.72° **All-in-One PKA**

Motor Only

1.8°/0.9° **PKP/PK**

Geared **PKP**

0.72°/0.36° **PKP**

Accessories

2 Driver Types Available Depending on the System Configuration

2 types of **AR** Series drivers are available, depending on the master control system in use.

● Built-in Controller Type **FLEX**

● When Controlling with I/O

① I/O

● When Controlling from Computer or Touch Screen (HMI)

② Modbus (RTU)

● When Controlling with Serial Communication

② Modbus (RTU)

● When Controlling with FA Network

③ FA Network

② RS-485

Network Converter

With this type, the operating data is set in the driver, which can then be selected and executed from the host system. Host system connection and control are performed with ① I/O, ② Modbus (RTU)/RS-485 or ③ FA network.

● Pulse Input Type

Pulse Input

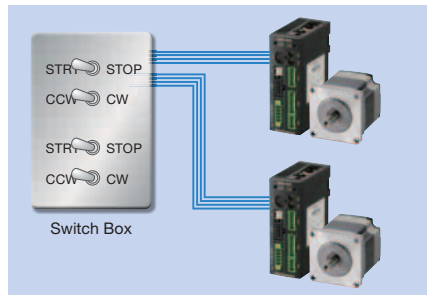
This type executes operations by inputting pulses into the driver. It controls the motor using a positioning module (pulse generator).

● Control System Configuration for Built-in Controller Type

① I/O Control

The positioning module (pulse generator) function is built into the driver, and therefore an operation system using I/O can be created by connecting directly to a switch box or PLC. A positioning module is not necessary on the PLC side, saving space and simplifying the system.

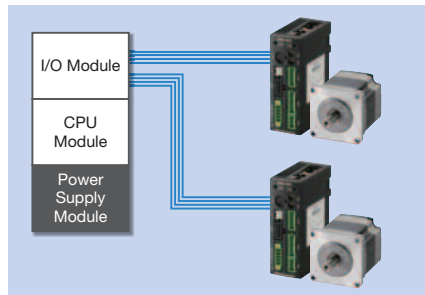
● Example of Using a Switch Box



Operating data is set in the driver, and the motor can be started or stopped simply by connecting a switch. Control can be performed easily without using PLC.

- Easy Control
- Low-Cost Design

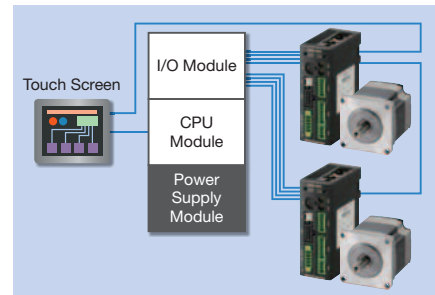
● Example of Using PLC



When using PLC, an operation system can be created by connecting directly to an I/O module. A positioning module is not necessary on the PLC side, therefore space is saved and the system is simplified.

- Easy Control
- Low-Cost Design
- Space Saving

● Example of Using PLC and a Touch Screen



Normally, the motor is started and stopped with I/O. Changing the operating data settings and displaying the monitors and alarms is performed with the touch screen using Modbus (RTU) communication. When there is a lot of setup work, changes can be easily performed on the touch screen, and the burden of creating ladders is reduced.

- Easy Control
- Support for Small Lots of Multiple Products

② Control via Modbus (RTU)/RS-485 Communication

RS-485 communication can be used to set operating data and parameters and input operation commands. Up to 31 drivers can be connected to 1 serial communication module. There is a function that enables multiple shafts to be started simultaneously. The Modbus (RTU) protocol is supported and can be used to connect to touch screens and computer.

- Easy Control
- Simple Wiring
- Supports Brands of Serial Module
- Motor Controlled by Computer
- Simplified System

③ Control via FA Network

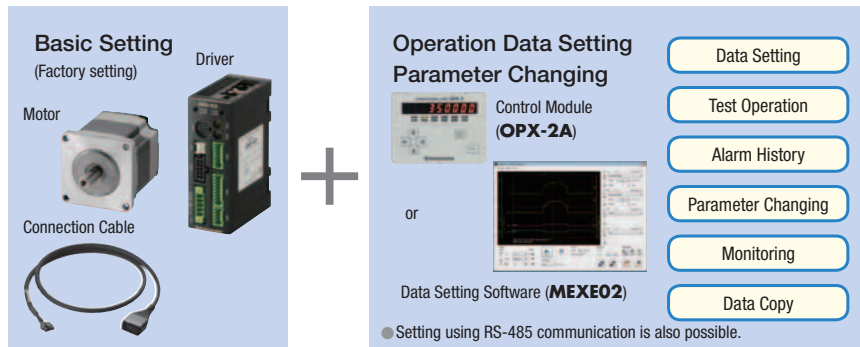
By using a network converter (sold separately), CC-link, MECHATROLINK or EtherCAT communication are possible. These can be used to set operating data and parameters and input operation commands.

- Easy Control
- Simple Wiring
- Multi-Axis Control at Low Cost

Built-in Controller Type

Because the driver has the information necessary for motor operation on built-in controller types, the burden on the host PLC is reduced. The system configuration when using multi-axis control has been simplified.

Settings are configured using a control module (sold separately), data setting software or RS-485 communication.



● Operation Types

In the built-in controller type, the operating speed and traveling amount of the motor are set with operating data, and operation is performed according to the selected operating data. There are four types of motor operations.

Item		Description		
Common	Control Method	I/O control		
		RS-485 Communication	Network Converter Connection Modbus RTU Protocol Connection	
	Position Command Input	Setting with operating data number	Command range for each point: -8388608~8388607 [step] (Setting unit: 1 [step])	
	Speed Command Input	Setting with operating data number	Command Range: 0~1000000 [Hz] (Setting unit: 1 [Hz])	
	Acceleration/Deceleration Command Input	Set with the operating data number or parameter. The acceleration/deceleration rate [ms/kHz] or acceleration/deceleration time [s] can be selected. Command Range: 0.001~1000.000 [ms/kHz] (Setting unit: 0.001 [ms/kHz]) 0.001~1000.000 [s] (Setting unit: 0.001 [s])		
	Acceleration/Deceleration Processing	Velocity Filter, Movement Average Filter		
Return-To-Home Operation	Return-to-Home Modes	2-Sensor Mode	A return-to-home operation that uses a limit sensor (+LS, -LS).	
		3-Sensor Mode	A return-to-home operation that uses a limit sensor and a HOME sensor.	
		Pushing Mode*1	A return-to-home operation by pressing the table against the mechanical end of a linear slide, etc.	
		Position Preset	A function where P-PRESET is input at the desired position to confirm the home position. The home position can be set to the desired value.	
Positioning Operation	Number of Positioning Points	64 points (No. 0~63)		
		Operating Modes	Incremental mode (Relative positioning)	
	Absolute mode (Absolute positioning)			
	Operation Functions	Independent Operation	A PTP (Point to Point) positioning operation.	
		Linked Operation	A multistep speed-change positioning operation that is linked with operating data.	
		Linked Operation 2	A positioning operation with a timer that is linked with operating data. The timer (dwell time) can be set from 0~50.000 [s]. (Setting unit: 0.001 [s])	
	Start Methods	Push-Motion Operation*1	Continuous pressurizing position operations are performed with respect to the load. Maximum speed of operation is 500 [r/min] on the motor shaft.	
		Operating Data Selection Method	Starts the positioning operation when START is input after selecting M0~M5.	
Direct Method (Direct positioning)			Starts the positioning operation with the operating data number set in the parameters when MS0~MS5 is input.	
Sequential Method (Sequential positioning)	Starts the positioning operation in sequence from operating data No. 0 each time SSTART is input.			
Continuous Operation	Number of Speed Points	64 points (No. 0~63)		
	Speed Change Method	Changes the operating data number.		
Other Operations	JOG Operation	Regular feed is performed by inputting +JOG or -JOG.		
	Automatic Return Operation	When the motor position is moved by an external force while the motor is in a non-excitation state, it automatically returns to the position where it originally stopped.		
	Control Mode*2	The normal mode and the current control mode can be selected.		
Absolute Backup	You can build an absolute system by using a battery (accessory).			

*1 Do not perform push-motion operation using geared type motors. Doing so may damage the motor or gear unit.

*2 Except to further reduce heat generation or noise, using normal mode is recommended.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared **Q5STEP AR**

0.36°/Geared **Q5STEP Absolute AZ**

0.72°/Geared **RKII**

DC Input Motor & Driver

0.36°/Geared **Q5STEP AR**

0.36°/Geared **Q5STEP Absolute AZ**

0.72°/0.36°/Geared **CRK**

1.8°/Geared **RBK**

1.8°/0.9°/Geared **CMK**

0.72° **All-in-One PKA**

Motor Only

1.8°/0.9° **PKP/PK**

Geared **PKP**

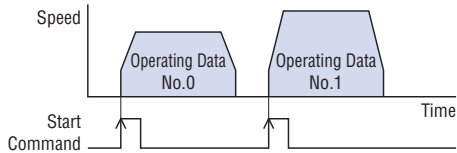
0.72°/0.36° **PKP**

Accessories

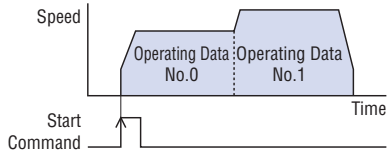
Positioning Operation

<Operation Functions>

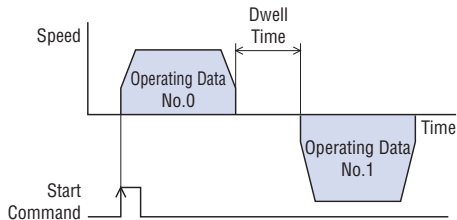
•Independent Operation



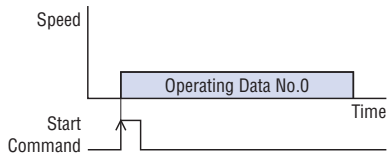
•Linked Operation



•Linked Operation 2



•Push-Motion Operation

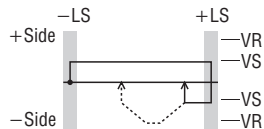


<Start Methods>

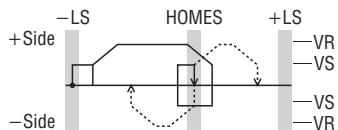
- Operating Data Selection Method
- Direct Positioning
- Sequential Positioning

Return-To-Home Operation

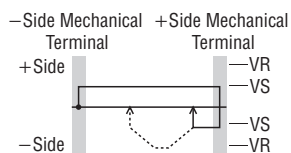
•2-Sensor Mode



•3-Sensor Mode

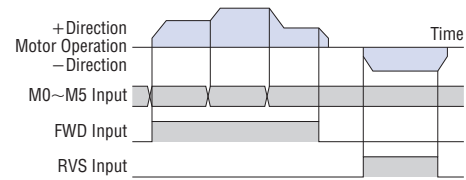


•Pushing Mode



•Position Preset

Continuous Operation



Other Operations

•JOG Operation (Test operation)

•Automatic Return Operation

- Equipped with a sequence for return-to-home operation that reduces the burden of the host master and the hassle of creating a ladder.

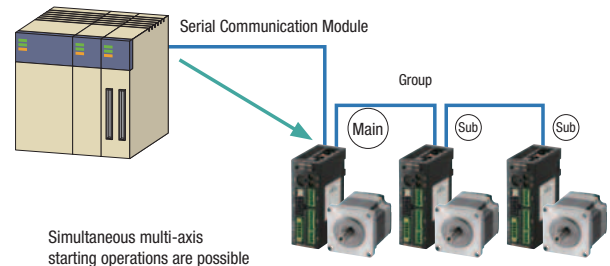
•Group Send Function

Modbus (RTU) communication and FA network have a function that enables multiple shafts to be started simultaneously.

Multiple drivers can be grouped together, and when an operation command is sent to the master driver, all the drivers that belong to the same group as the master driver will operate simultaneously.

- Modbus (RTU) Control: Support for simultaneous start, changes to traveling amount and speed and monitoring
- FA network control: Simultaneous start only

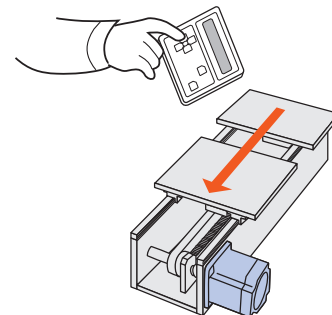
•Example of Modbus (RTU) Communication Control



•Teaching Function

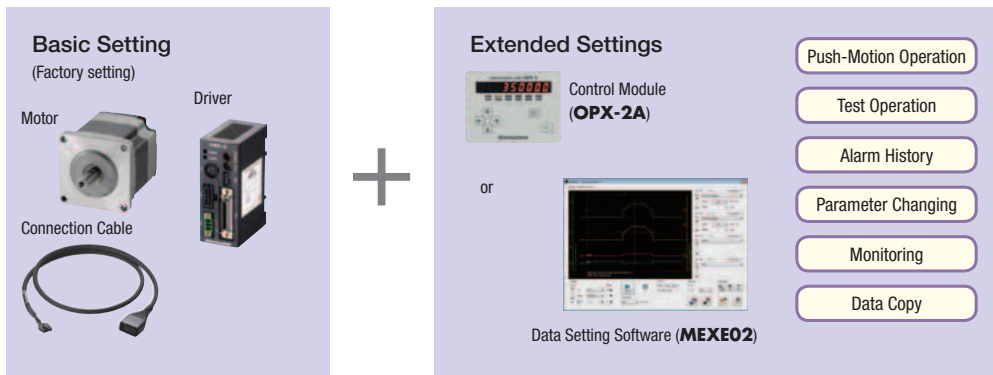
Teaching can be performed with the **OPX-2A** control module (sold separately) or the **MEXE02*** data setting software. The table is moved to the desired position, and the position data at that time is stored as the positioning data.

*The data setting software can be downloaded from the website. Please contact us for details.



Pulse Input Type

The control module (sold separately) and data setting software can be used to change the parameters, display the alarm history, and perform various types of monitoring.



● Main Additional Functions Available with Extended Settings

Item	Overview	Basic Setting	Extended Settings	
Selection of Pulse Input Mode	1-pulse input mode or 2-pulse input (negative logic) mode can be selected.	●	●	
	In addition to the normal settings, the phase difference input can also be set. · 1-pulse input mode (positive logic/negative logic) · 2-pulse input mode (positive logic/negative logic) · Phase difference input (1-multiplication/2-multiplication/4-multiplication)	—	●	
Resolution Setting	The resolution can be selected with a function switch (D0, D1, CS0, CS1).	●	●	
	The function switch can be used to change each of the corresponding electronic gear values (D0, D1, CS0, CS1).	—	●	
Running Current Setting	The running current setting can be changed with the current setting switch (CURRENT).	●	●	
	The value corresponding to each stage of the current setting switch (CURRENT), 0~F (16 stages), can be changed.	—	●	
Standstill Current Ratio Setting	The ratio of the standstill current relative to the running current can be set.	—	●	
Motor Rotational Coordinates Setting	The rotational coordinates for the motor can be set.	—	●	
Current On Signal (C-ON input)	The input signal for the excitation of the motor.	●	●	
	The logic of the C-ON input during power supply input can be set.	—	●	
Return to Excitation Position Operation During Current On Enable/Disable	Set whether or not to return to the excitation position (deviation 0 position) during current on.	—	●	
I/O Input Signal Mode Selection	Input to select the push-motion operation*1.	—	●	
Alarm Code Signal Enable/Disable	Set to output the code when an alarm occurs.	—	●	
END Output Signal Range Setting	The END output signal range can be changed.	—	●	
END Output Signal Offset	The END output signal value can be offset.	—	●	
A/B Phase Output	This can be used to confirm the position of the motor.	●	●	
Timing Output Signal	This is output each time the motor rotates 7.2°.	●	●	
Velocity Filter Setting	Applies a filter to the operation command to control the motor action.	●	●	
	The values corresponding to each of 0~F (16 levels) for the setting switch.	—	●	
Control Mode	Vibration Suppression Function for Normal Mode	This can be set to suppress resonant vibration during rotation.	—	●
		This can be set to suppress vibration during acceleration, and deceleration, and when stopped.	—	●
	Gain Adjustment for Current Control Mode*2	Adjusts the position and speed loop gain.	—	●
		Adjusts the speed integration time constant.	—	●
Selection of Motor Excitation Position at Power On	Sets the damping control vibration frequency.	—	●	
	Sets whether to enable or disable damping control.	—	●	
Control Module Setting	The motor excitation position for when the power is on can be selected.	—	●	
	Select whether to use symbols or an absolute value display for the speed display of the control module. The geared motor gear ratio for the speed monitor can be set.	—	●	

*1 Do not perform push-motion operation using geared type motors. Doing so may damage the motor or gear unit.

*2 Except to further reduce heat generation or noise, using normal mode is recommended.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK






Geared
PKP

0.72°/0.36°
PKP

Accessories

Product Line of Motors

Types and Features of Standard and Geared Motors

Type	Features	Gear Ratio	Permissible Torque/Max. Instantaneous Torque [N·m (lb-in.)]	Backlash [arcmin (degrees)]	Basic Resolution [deg/step]	Output Shaft Speed [r/min]	
Standard 	<ul style="list-style-type: none"> Basic motor of the AR Series. 	—	Maximum Holding Torque 2 (17.7)	—	0.36	4000	
Low backlash	TH Geared Type (Spur Gear Mechanism) 	3.6, 7.2, 10, 20, 30 (A lineup of gear ratios for selecting the desired step angle)	12 (106)	10 (0.17)	0.012	500	
	PS Geared Type (Planetary Gear Mechanism) 	<ul style="list-style-type: none"> High Speed (Low gear ratio) High Permissible Torque High Maximum Instantaneous Torque Center Shaft 	5, 7.2, 10, 25, 36, 50 (A lineup of gear ratios for selecting the desired step angle)	Permissible Torque: 37 (320) Max. Instantaneous Torque: 60 (530)	7 (0.12)	0.0072	600
Non-backlash	PN Geared Type (Planetary Gear Mechanism) 	<ul style="list-style-type: none"> High Speed (Low gear ratio) High Positioning Accuracy High Permissible Torque High Maximum Instantaneous Torque Center Shaft 	5, 7.2, 10, 25, 36, 50 (A lineup of gear ratios for selecting the desired step angle)	Permissible Torque: 37 (320) Max. Instantaneous Torque: 60 (530)	2 (0.034)	0.0072	600
	Harmonic Geared Type (Harmonic Drive) 	<ul style="list-style-type: none"> High Resolution (High gear ratio) High Positioning Accuracy High Permissible Torque High Maximum Instantaneous Torque Center Shaft 	50, 100	Permissible Torque: 37 (320) Max. Instantaneous Torque: 55 (480)	0	0.0036	70

Note

Please use the above values as reference to see the differences between each type. These values vary depending on the motor frame size and gear ratio.

Frame Sizes

5 motor frame sizes are available for the built-in controller type and for the pulse input type.

[□42 (□1.65): Indicates a motor frame size of 42 mm (1.65 in.)]

Motor Type		□28 (□1.10) [□30 (□1.18)*1]	□42 (□1.65)	□60 (□2.36)	□85 (□3.35) [□90 (□3.54)*2]
Standard Type	Without Electromagnetic Brake	●	●	●	●
	Electromagnetic Brake Type		●	●	●
TH, PS, PN , Harmonic Geared Type	Without Electromagnetic Brake	●	●	●	●
	Electromagnetic Brake Type		●	●	●

*1 Harmonic geared type

*2 Geared type

Conforms to Various Directives

◇ Components Conforming to International Safety Standards

UL Standards certified

[Except for motor frame size of 28 mm (1.10 in.)]

This product has a CE Marking (EMC Directive) affixed under the Low Voltage Directive.

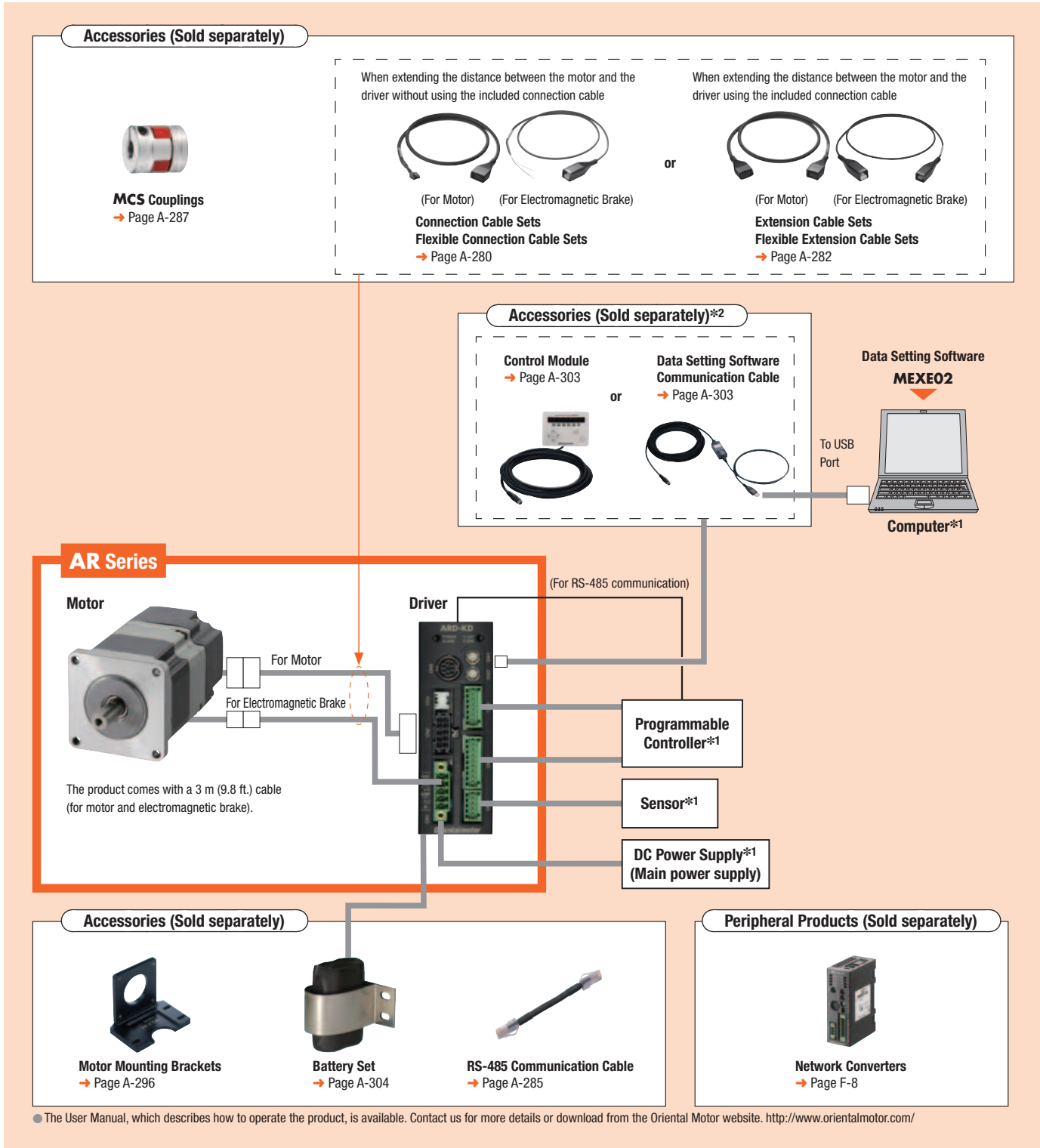
System Configuration

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.

*1 Not supplied

*2 Required for I/O control drive.



Overview, Product Series

AC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

0.72°/0.36° PKP

Accessories

Example of System Configuration

AR Series	Sold Separately	
	Motor Mounting Bracket	Flexible Coupling
AR66MKD-3	PAL2P-5A	MCS300610
\$783.00	\$17.00	\$71.00

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

CAD Data Manuals

www.orientalmotor.com

Technical Support

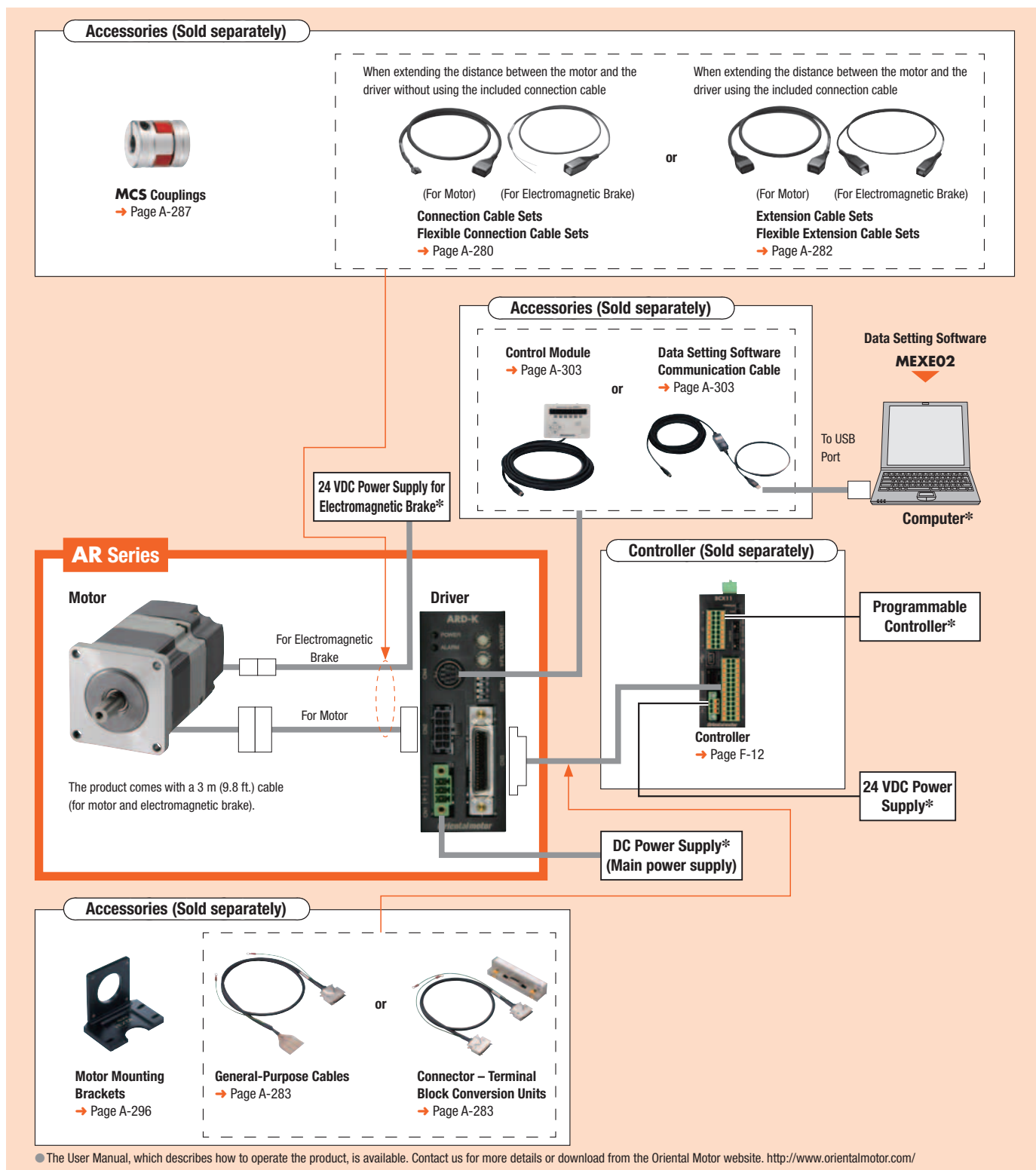
TEL: (800) 468-3982

E-mail: techsupport@orientalmotor.com

●Pulse Input Type, Standard Type with Electromagnetic Brake

An example of a single-axis system configuration with the **SCX11** controller is shown below.

*Not supplied



●Example of System Configuration

AR Series	Sold Separately			
	Controller	Motor Mounting Bracket	Flexible Coupling	Connector - Terminal Block Conversion Unit 1 m (3.3 ft.)
AR66MK-3	SCX11	PAL2P-5A	MCS300610	CC36T10E
\$733.00	\$349.00	\$17.00	\$71.00	\$284.00

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

Product Number

AR 6 6 S A K D - PS 10 - 3

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Series Name	AR: AR Series
②	Motor Frame Size	2: 28 mm (1.10 in.) [30 mm (1.18 in.)] 4: 42 mm (1.65 in.) 6: 60 mm (2.36 in.) 9: 85 mm (3.35 in.) [90 mm (3.54 in.)]
③	Motor Case Length	
④	Motor Classification	
⑤	Configuration	A: Single Shaft B: Double Shaft M: With Electromagnetic Brake
⑥	Power Supply Input	K: DC Power Supply

⑦	Driver Type	D: Built-in Controller Type Blank: Pulse Input Type
⑧	Geared Type	Blank: Standard Type T: TH Geared Type PS: PS Geared Type N: PN Geared Type H: Harmonic Geared Type
⑨	Gear Ratio	
⑩	Connection Cable	3: 3m (9.8 ft.)

Product Line

Built-in Controller Type

◇ Standard Type

Product Name (Single shaft)	List Price
AR24SAKD-3	\$544.00
AR26SAKD-3	\$553.00
AR46AKD-3	\$535.00
AR66AKD-3	\$590.00
AR69AKD-3	\$612.00
AR98AKD-3	\$655.00

Product Name (Double shaft)	List Price
AR24SBKD-3	\$546.00
AR26SBKD-3	\$555.00
AR46BKD-3	\$538.00
AR66BKD-3	\$592.00
AR69BKD-3	\$615.00
AR98BKD-3	\$658.00

◇ Standard Type with Electromagnetic Brake

Product Name	List Price
AR46MKD-3	\$728.00
AR66MKD-3	\$783.00
AR69MKD-3	\$806.00
AR98MKD-3	\$848.00

◇ TH Geared Type

Product Name	List Price
AR24SAKD-T7.2-3	\$697.00
AR24SAKD-T10-3	\$709.00
AR24SAKD-T20-3	\$709.00
AR24SAKD-T30-3	\$709.00
AR46AKD-T3.6-3	\$641.00
AR46AKD-T7.2-3	\$641.00
AR46AKD-T10-3	\$654.00
AR46AKD-T20-3	\$654.00
AR46AKD-T30-3	\$654.00
AR66AKD-T3.6-3	\$709.00
AR66AKD-T7.2-3	\$709.00
AR66AKD-T10-3	\$721.00
AR66AKD-T20-3	\$721.00
AR66AKD-T30-3	\$721.00
AR98AKD-T3.6-3	\$800.00
AR98AKD-T7.2-3	\$800.00
AR98AKD-T10-3	\$813.00
AR98AKD-T20-3	\$813.00
AR98AKD-T30-3	\$813.00

◇ TH Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MKD-T3.6-3	\$835.00
AR46MKD-T7.2-3	\$835.00
AR46MKD-T10-3	\$847.00
AR46MKD-T20-3	\$847.00
AR46MKD-T30-3	\$847.00
AR66MKD-T3.6-3	\$902.00
AR66MKD-T7.2-3	\$902.00
AR66MKD-T10-3	\$915.00
AR66MKD-T20-3	\$915.00
AR66MKD-T30-3	\$915.00
AR98MKD-T3.6-3	\$994.00
AR98MKD-T7.2-3	\$994.00
AR98MKD-T10-3	\$1,006.00
AR98MKD-T20-3	\$1,006.00
AR98MKD-T30-3	\$1,006.00

The following items are included with each product.
 Motor, Parallel Key*1, Driver, Cable for Motor*2, Cable for Electromagnetic Brake (Products with an electromagnetic brake type only)*2, Connector Set for Driver, Operating Manual
 *1 Only for products with a key slot on the output shaft.
 *2 Accessory cables (sold separately) must be purchased in the following situations:
 • When using a flexible extension cable
 • When using a cable longer than 3 m (9.8 ft.)

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
QSTEP AR

0.36°/Geared
QSTEP Absolute AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
QSTEP AR

0.36°/Geared
QSTEP Absolute AZ

0.72°/0.36°/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

◇ PS Geared Type

Product Name	List Price
AR24SAKD-PS5-3	\$769.00
AR24SAKD-PS7-3	\$769.00
AR24SAKD-PS10-3	\$769.00
AR46AKD-PS5-3	\$742.00
AR46AKD-PS7-3	\$742.00
AR46AKD-PS10-3	\$742.00
AR46AKD-PS25-3	\$787.00
AR46AKD-PS36-3	\$787.00
AR46AKD-PS50-3	\$787.00
AR66AKD-PS5-3	\$842.00
AR66AKD-PS7-3	\$842.00
AR66AKD-PS10-3	\$842.00
AR66AKD-PS25-3	\$905.00
AR66AKD-PS36-3	\$905.00
AR66AKD-PS50-3	\$905.00
AR98AKD-PS5-3	\$970.00
AR98AKD-PS7-3	\$970.00
AR98AKD-PS10-3	\$970.00
AR98AKD-PS25-3	\$1,078.00
AR98AKD-PS36-3	\$1,078.00
AR98AKD-PS50-3	\$1,078.00

◇ PN Geared Type

Product Name	List Price
AR24SAKD-N5-3	\$972.00
AR24SAKD-N7.2-3	\$972.00
AR24SAKD-N10-3	\$972.00
AR46AKD-N5-3	\$823.00
AR46AKD-N7.2-3	\$823.00
AR46AKD-N10-3	\$823.00
AR66AKD-N5-3	\$1,022.00
AR66AKD-N7.2-3	\$1,022.00
AR66AKD-N10-3	\$1,022.00
AR66AKD-N25-3	\$1,154.00
AR66AKD-N36-3	\$1,154.00
AR66AKD-N50-3	\$1,154.00
AR98AKD-N5-3	\$1,314.00
AR98AKD-N7.2-3	\$1,314.00
AR98AKD-N10-3	\$1,314.00
AR98AKD-N25-3	\$1,414.00
AR98AKD-N36-3	\$1,414.00
AR98AKD-N50-3	\$1,414.00

◇ Harmonic Geared Type

Product Name	List Price
AR24SAKD-H50-3	\$1,006.00
AR24SAKD-H100-3	\$1,006.00
AR46AKD-H50-3	\$1,007.00
AR46AKD-H100-3	\$1,007.00
AR66AKD-H50-3	\$1,292.00
AR66AKD-H100-3	\$1,292.00
AR98AKD-H50-3	\$1,672.00
AR98AKD-H100-3	\$1,672.00

The following items are included with each product.

Motor, Parallel Key*1, Driver, Cable for Motor*2, Cable for Electromagnetic Brake (Products with an electromagnetic brake type only)*2, Connector Set for Driver, Operating Manual

*1 Only for products with a key slot on the output shaft.

*2 Accessory cables (sold separately) must be purchased in the following situations:

- When using a flexible extension cable
- When using a cable longer than 3 m (9.8 ft.)

◇ PS Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MKD-PS5-3	\$935.00
AR46MKD-PS7-3	\$935.00
AR46MKD-PS10-3	\$935.00
AR46MKD-PS25-3	\$980.00
AR46MKD-PS36-3	\$980.00
AR46MKD-PS50-3	\$980.00
AR66MKD-PS5-3	\$1,035.00
AR66MKD-PS7-3	\$1,035.00
AR66MKD-PS10-3	\$1,035.00
AR66MKD-PS25-3	\$1,098.00
AR66MKD-PS36-3	\$1,098.00
AR66MKD-PS50-3	\$1,098.00
AR98MKD-PS5-3	\$1,163.00
AR98MKD-PS7-3	\$1,163.00
AR98MKD-PS10-3	\$1,163.00
AR98MKD-PS25-3	\$1,271.00
AR98MKD-PS36-3	\$1,271.00
AR98MKD-PS50-3	\$1,271.00

◇ PN Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MKD-N5-3	\$1,016.00
AR46MKD-N7.2-3	\$1,016.00
AR46MKD-N10-3	\$1,016.00
AR66MKD-N5-3	\$1,215.00
AR66MKD-N7.2-3	\$1,215.00
AR66MKD-N10-3	\$1,215.00
AR66MKD-N25-3	\$1,348.00
AR66MKD-N36-3	\$1,348.00
AR66MKD-N50-3	\$1,348.00
AR98MKD-N5-3	\$1,508.00
AR98MKD-N7.2-3	\$1,508.00
AR98MKD-N10-3	\$1,508.00
AR98MKD-N25-3	\$1,608.00
AR98MKD-N36-3	\$1,608.00
AR98MKD-N50-3	\$1,608.00

◇ Harmonic Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MKD-H50-3	\$1,201.00
AR46MKD-H100-3	\$1,201.00
AR66MKD-H50-3	\$1,485.00
AR66MKD-H100-3	\$1,485.00
AR98MKD-H50-3	\$1,865.00
AR98MKD-H100-3	\$1,865.00

● Pulse Input Type

◇ Standard Type

Product Name (Single shaft)	List Price
AR24SAK-3	\$494.00
AR26SAK-3	\$503.00
AR46AK-3	\$485.00
AR66AK-3	\$540.00
AR69AK-3	\$562.00
AR98AK-3	\$605.00

◇ Standard Type with Electromagnetic Brake

Product Name	List Price
AR46MK-3	\$678.00
AR66MK-3	\$733.00
AR69MK-3	\$756.00
AR98MK-3	\$798.00

◇ TH Geared Type

Product Name	List Price
AR24SAK-T7.2-3	\$647.00
AR24SAK-T10-3	\$659.00
AR24SAK-T20-3	\$659.00
AR24SAK-T30-3	\$659.00
AR46AK-T3.6-3	\$591.00
AR46AK-T7.2-3	\$591.00
AR46AK-T10-3	\$604.00
AR46AK-T20-3	\$604.00
AR46AK-T30-3	\$604.00
AR66AK-T3.6-3	\$659.00
AR66AK-T7.2-3	\$659.00
AR66AK-T10-3	\$671.00
AR66AK-T20-3	\$671.00
AR66AK-T30-3	\$671.00
AR98AK-T3.6-3	\$750.00
AR98AK-T7.2-3	\$750.00
AR98AK-T10-3	\$763.00
AR98AK-T20-3	\$763.00
AR98AK-T30-3	\$763.00

The following items are included with each product.

Motor, Parallel Key*1, Driver, Cable for Motor*2, Cable for Electromagnetic Brake (Products with an electromagnetic brake type only)*2, Connector Set for Driver, Varistor (Products with an electromagnetic brake type only), Operating Manual

*1 Only for products with a key slot on the output shaft.

*2 Accessory cables (sold separately) must be purchased in the following situations:

- When using a flexible extension cable
- When using a cable longer than 3 m (9.8 ft.)

Product Name (Double shaft)	List Price
AR24SBK-3	\$496.00
AR26SBK-3	\$505.00
AR46BK-3	\$488.00
AR66BK-3	\$542.00
AR69BK-3	\$565.00
AR98BK-3	\$608.00

◇ TH Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MK-T3.6-3	\$785.00
AR46MK-T7.2-3	\$785.00
AR46MK-T10-3	\$797.00
AR46MK-T20-3	\$797.00
AR46MK-T30-3	\$797.00
AR66MK-T3.6-3	\$852.00
AR66MK-T7.2-3	\$852.00
AR66MK-T10-3	\$865.00
AR66MK-T20-3	\$865.00
AR66MK-T30-3	\$865.00
AR98MK-T3.6-3	\$944.00
AR98MK-T7.2-3	\$944.00
AR98MK-T10-3	\$956.00
AR98MK-T20-3	\$956.00
AR98MK-T30-3	\$956.00

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

◇ PS Geared Type

Product Name	List Price
AR24SAK-PS5-3	\$719.00
AR24SAK-PS7-3	\$719.00
AR24SAK-PS10-3	\$719.00
AR46AK-PS5-3	\$692.00
AR46AK-PS7-3	\$692.00
AR46AK-PS10-3	\$692.00
AR46AK-PS25-3	\$737.00
AR46AK-PS36-3	\$737.00
AR46AK-PS50-3	\$737.00
AR66AK-PS5-3	\$792.00
AR66AK-PS7-3	\$792.00
AR66AK-PS10-3	\$792.00
AR66AK-PS25-3	\$855.00
AR66AK-PS36-3	\$855.00
AR66AK-PS50-3	\$855.00
AR98AK-PS5-3	\$920.00
AR98AK-PS7-3	\$920.00
AR98AK-PS10-3	\$920.00
AR98AK-PS25-3	\$1,028.00
AR98AK-PS36-3	\$1,028.00
AR98AK-PS50-3	\$1,028.00

◇ PN Geared Type

Product Name	List Price
AR24SAK-N5-3	\$922.00
AR24SAK-N7.2-3	\$922.00
AR24SAK-N10-3	\$922.00
AR46AK-N5-3	\$773.00
AR46AK-N7.2-3	\$773.00
AR46AK-N10-3	\$773.00
AR66AK-N5-3	\$972.00
AR66AK-N7.2-3	\$972.00
AR66AK-N10-3	\$972.00
AR66AK-N25-3	\$1,104.00
AR66AK-N36-3	\$1,104.00
AR66AK-N50-3	\$1,104.00
AR98AK-N5-3	\$1,264.00
AR98AK-N7.2-3	\$1,264.00
AR98AK-N10-3	\$1,264.00
AR98AK-N25-3	\$1,364.00
AR98AK-N36-3	\$1,364.00
AR98AK-N50-3	\$1,364.00

◇ Harmonic Geared Type

Product Name	List Price
AR24SAK-H50-3	\$956.00
AR24SAK-H100-3	\$956.00
AR46AK-H50-3	\$957.00
AR46AK-H100-3	\$957.00
AR66AK-H50-3	\$1,242.00
AR66AK-H100-3	\$1,242.00
AR98AK-H50-3	\$1,622.00
AR98AK-H100-3	\$1,622.00

The following items are included with each product.

Motor, Parallel Key*1, Driver, Cable for Motor*2, Cable for Electromagnetic Brake (Products with an electromagnetic brake type only)*2, Connector Set for Driver, Varistor (Products with an electromagnetic brake type only), Operating Manual

*1 Only for products with a key slot on the output shaft.

*2 Accessory cables (sold separately) must be purchased in the following situations:

- When using a flexible extension cable
- When using a cable longer than 3 m (9.8 ft.)

◇ PS Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MK-PS5-3	\$885.00
AR46MK-PS7-3	\$885.00
AR46MK-PS10-3	\$885.00
AR46MK-PS25-3	\$930.00
AR46MK-PS36-3	\$930.00
AR46MK-PS50-3	\$930.00
AR66MK-PS5-3	\$985.00
AR66MK-PS7-3	\$985.00
AR66MK-PS10-3	\$985.00
AR66MK-PS25-3	\$1,048.00
AR66MK-PS36-3	\$1,048.00
AR66MK-PS50-3	\$1,048.00
AR98MK-PS5-3	\$1,113.00
AR98MK-PS7-3	\$1,113.00
AR98MK-PS10-3	\$1,113.00
AR98MK-PS25-3	\$1,221.00
AR98MK-PS36-3	\$1,221.00
AR98MK-PS50-3	\$1,221.00

◇ PN Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MK-N5-3	\$966.00
AR46MK-N7.2-3	\$966.00
AR46MK-N10-3	\$966.00
AR66MK-N5-3	\$1,165.00
AR66MK-N7.2-3	\$1,165.00
AR66MK-N10-3	\$1,165.00
AR66MK-N25-3	\$1,298.00
AR66MK-N36-3	\$1,298.00
AR66MK-N50-3	\$1,298.00
AR98MK-N5-3	\$1,458.00
AR98MK-N7.2-3	\$1,458.00
AR98MK-N10-3	\$1,458.00
AR98MK-N25-3	\$1,558.00
AR98MK-N36-3	\$1,558.00
AR98MK-N50-3	\$1,558.00

◇ Harmonic Geared Type with Electromagnetic Brake

Product Name	List Price
—	—
AR46MK-H50-3	\$1,151.00
AR46MK-H100-3	\$1,151.00
AR66MK-H50-3	\$1,435.00
AR66MK-H100-3	\$1,435.00
AR98MK-H50-3	\$1,815.00
AR98MK-H100-3	\$1,815.00

Standard Type Frame Size 28 mm (1.10 in.)

Specifications



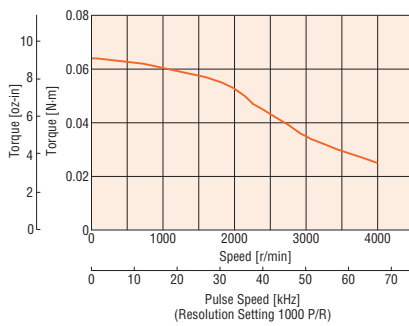
Product Name	Built-in Controller Type		AR24S□KD-3	AR26S□KD-3
	Pulse Input Type		AR24S□K-3	AR26S□K-3
Maximum Holding Torque	N·m (oz·in)		0.055 (7.8)	0.12 (17.0)
Holding Torque at Motor Standstill	Power ON	N·m (oz·in)	0.027 (3.8)	0.06 (8.5)
Rotor Inertia	J: kg·m ² (oz·in ²)		11 × 10 ⁻⁷ (0.060)	20 × 10 ⁻⁷ (0.109)
Resolution	Resolution Setting: 1000 P/R		0.36°/Pulse	
Power Supply Input	Voltage		24 VDC ± 10% (24 VDC ± 5%)*	
	Maximum Input Current		A	
			0.9 (1.3)*	

● Either **A** (single shaft) or **B** (double shaft) indicating the configuration is entered where the box □ is located within the product name.

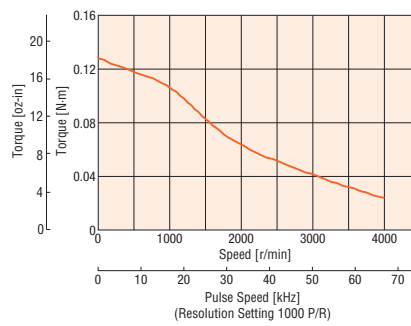
*The parentheses () indicate the specifications for the built-in controller type.

Speed – Torque Characteristics (Reference values)

AR24



AR26



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 100°C (212°F) or less.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

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



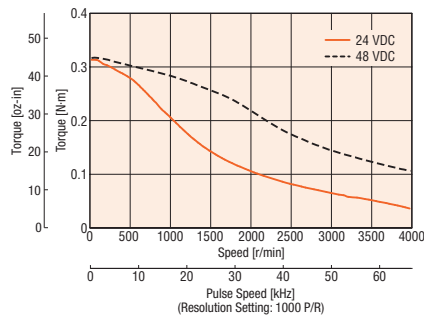
Specifications

Product Name	Built-in Controller Type	AR46□KD-3	AR66□KD-3	AR69□KD-3	AR98□KD-3
	Pulse Input Type	AR46□K-3	AR66□K-3	AR69□K-3	AR98□K-3
Maximum Holding Torque	N·m (oz·in)	0.3 (42)	1 (142)	2 (280)	
Holding Torque at Motor Standstill	Power ON	0.15 (21)	0.5 (71)	1 (142)	
	Electromagnetic Brake	0.15 (21)	0.5 (71)	1 (142)	
Rotor Inertia	J: kg·m ² (oz·in ²)	58×10 ⁻⁷ (0.32) [73×10 ⁻⁷ (0.4)]*1	380×10 ⁻⁷ (2.1) [500×10 ⁻⁷ (2.7)]*1	750×10 ⁻⁷ (4.1) [870×10 ⁻⁷ (4.8)]*1	1100×10 ⁻⁷ (6) [1220×10 ⁻⁷ (6.7)]*1
	Resolution Setting: 1000 P/R	0.36°/Pulse			
Power Supply Input	Voltage	24 VDC±10% (24 VDC±5%)*2/ 48 VDC±5%	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%*3		
	Maximum Input Current	A	1.4 (1.8)*2	3.1 (3.8)*2	3.0 (3.7)*2
Electromagnetic Brake*4	Power Supply Input	24 VDC±5%*5 0.08 A		24 VDC±5%*5 0.25 A	

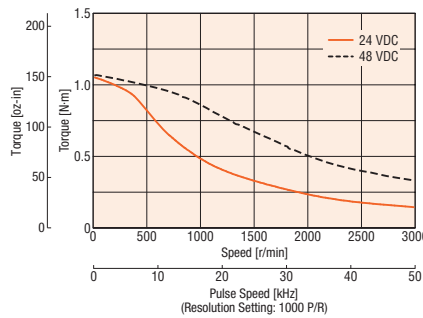
- Either **A** (single shaft), **B** (double shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.
- *1 The brackets [] indicate the specifications for the electromagnetic brake product.
- *2 The parentheses () indicate the specifications for the built-in controller type.
- *3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.
- *4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.
- *5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

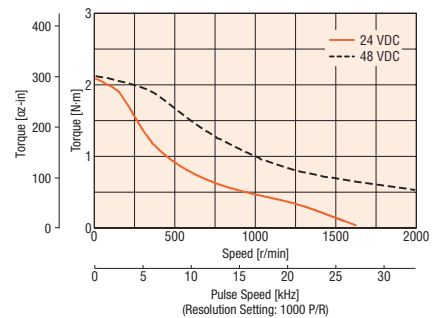
AR46



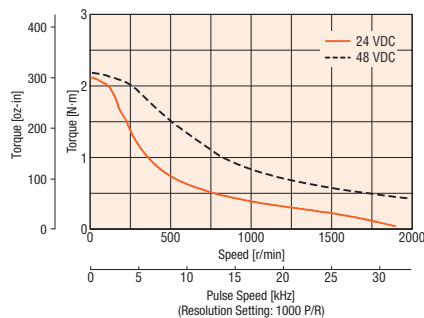
AR66



AR69



AR98



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 100°C (212°F) or less.
(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

TH Geared Type Frame Size 28 mm (1.10 in.)

Specifications

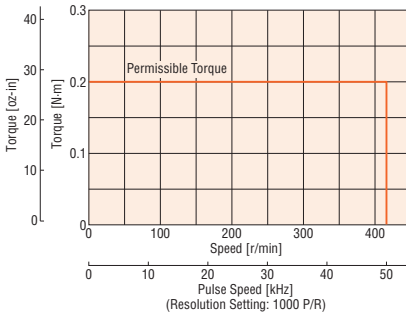


Product Name	Built-in Controller Type	AR24SAKD-T7.2-3	AR24SAKD-T10-3	AR24SAKD-T20-3	AR24SAKD-T30-3
	Pulse Input Type	AR24SAK-T7.2-3	AR24SAK-T10-3	AR24SAK-T20-3	AR24SAK-T30-3
Maximum Holding Torque	N·m (oz·in)	0.2 (28)	0.3 (42)	0.4 (56)	0.5 (71)
Rotor Inertia	J: kg·m ² (oz·in ²)	11×10^{-7} (0.060)			
Gear Ratio		7.2	10	20	30
Resolution	Resolution Setting: 1000 P/R	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse
Permissible Torque	N·m (oz·in)	0.2 (28)	0.3 (42)	0.4 (56)	0.5 (71)
Holding Torque at Motor Standstill	Power ON N·m (oz·in)	0.13 (18.4)	0.19 (26)	0.38 (53)	0.5 (71)
Speed Range	r/min	0~416	0~300	0~150	0~100
Backlash	arcmin (degrees)	60 (1°)			
Power Supply Input	Voltage	24 VDC ± 10% (24 VDC ± 5%)*			
	Maximum Input Current	A 0.9 (1.3)*			

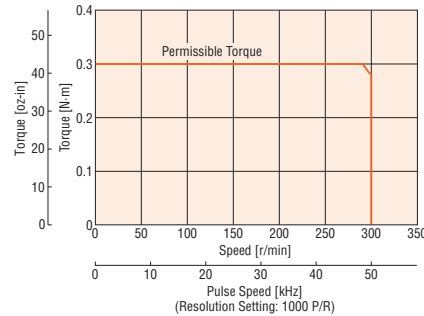
*The parentheses () indicate the specifications for the built-in controller type.

Speed – Torque Characteristics (Reference values)

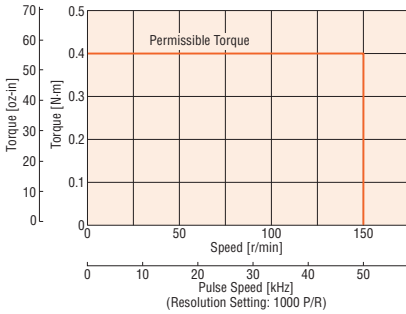
AR24 Gear Ratio 7.2



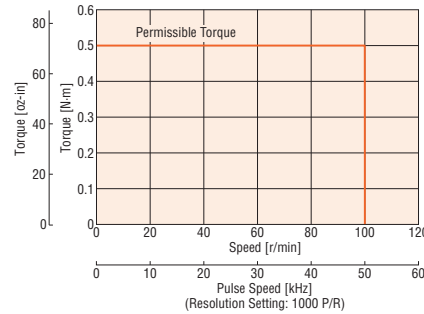
AR24 Gear Ratio 10



AR24 Gear Ratio 20



AR24 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 100°C (212°F) or less.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type	AR46□KD-T3.6-3	AR46□KD-T7.2-3	AR46□KD-T10-3	AR46□KD-T20-3	AR46□KD-T30-3	
	Pulse Input Type	AR46□K-T3.6-3	AR46□K-T7.2-3	AR46□K-T10-3	AR46□K-T20-3	AR46□K-T30-3	
Maximum Holding Torque	N·m (lb·in)	0.35 (3.0)	0.7 (6.1)	1 (8.8)	1.5 (13.2)		
Rotor Inertia	J: kg·m ² (oz·in ²)	58×10 ⁻⁷ (0.32) [73×10 ⁻⁷ (0.4)]*1					
Gear Ratio		3.6	7.2	10	20	30	
Resolution	Resolution Setting: 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse	
Permissible Torque	N·m (lb·in)	0.35 (3.0)	0.7 (6.1)	1 (8.8)	1.5 (13.2)		
Holding Torque at Motor Standstill	Power ON	N·m (lb·in)	0.33 (2.9)	0.67 (5.9)	0.93 (8.2)	1.5 (13.2)	
	Electromagnetic Brake	N·m (lb·in)	0.33 (2.9)	0.67 (5.9)	0.93 (8.2)	1.5 (13.2)	
Speed Range	r/min	0~500	0~250	0~180	0~90	0~60	
Backlash	arcmin (degrees)	45 (0.75°)	25 (0.42°)		15 (0.25°)		
Power Supply Input	Voltage	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%					
	Maximum Input Current	A					
Electromagnetic Brake*3	Power Supply Input	24 VDC±5%*4 0.08 A					

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

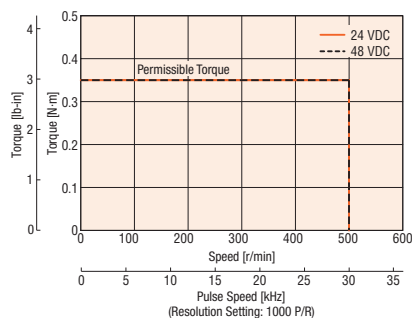
*2 The parentheses () indicate the specifications for the built-in controller type.

*3 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

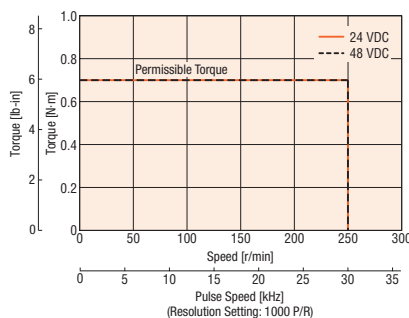
*4 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

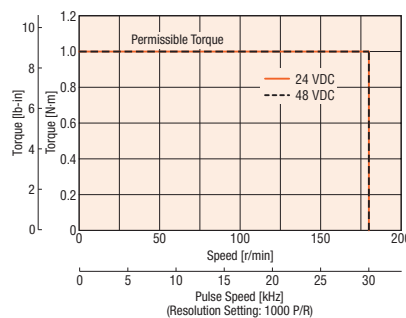
AR46 Gear Ratio 3.6



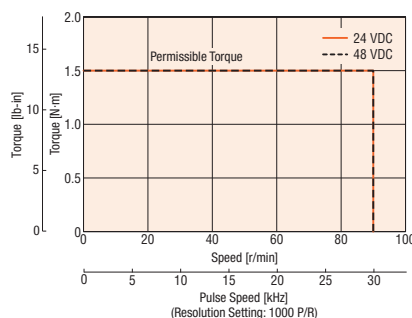
AR46 Gear Ratio 7.2



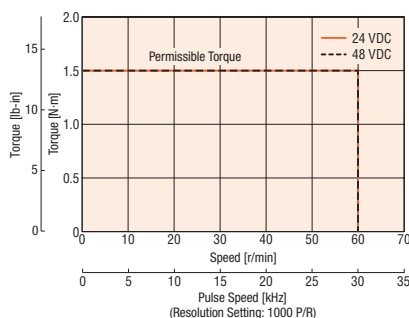
AR46 Gear Ratio 10



AR46 Gear Ratio 20



AR46 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

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

Specifications



Product Name	Built-in Controller Type	AR66□KD-T3.6-3	AR66□KD-T7.2-3	AR66□KD-T10-3	AR66□KD-T20-3	AR66□KD-T30-3
	Pulse Input Type	AR66□K-T3.6-3	AR66□K-T7.2-3	AR66□K-T10-3	AR66□K-T20-3	AR66□K-T30-3
Maximum Holding Torque	N-m (lb-in)	1.25 (11.0)	2.5 (22)	3 (26)	3.5 (30)	4 (35)
Rotor Inertia	J: kg·m ² (oz-in ²)	380×10 ⁻⁷ (2.1) [500×10 ⁻⁷ (2.7)]*1				
Gear Ratio		3.6	7.2	10	20	30
Resolution	Resolution Setting: 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse
Permissible Torque	N-m (lb-in)	1.25 (11.0)	2.5 (22)	3 (26)	3.5 (30)	4 (35)
Holding Torque at Motor Standstill	Power ON	1.1 (9.7)	2.2 (19.4)	3 (26)	3.5 (30)	4 (35)
	Electromagnetic Brake	1.1 (9.7)	2.2 (19.4)	3 (26)	3.5 (30)	4 (35)
Speed Range	r/min	0~500	0~250	0~180	0~90	0~60
Backlash	arcmin (degrees)	35 (0.59°)	15 (0.25°)		10 (0.17°)	
Power Supply Input	Voltage	24 VDC ± 10% (24 VDC ± 5%)*2 / 48 VDC ± 5%*3				
	Maximum Input Current	3.1 (3.8)*2				
Electromagnetic Brake*4	Power Supply Input	24 VDC ± 5%*5 0.25 A				

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type

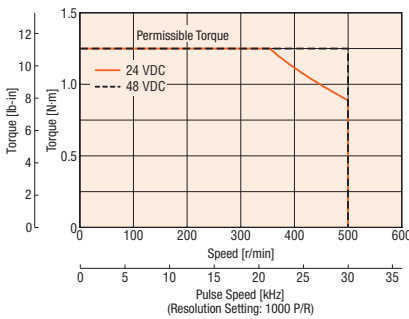
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

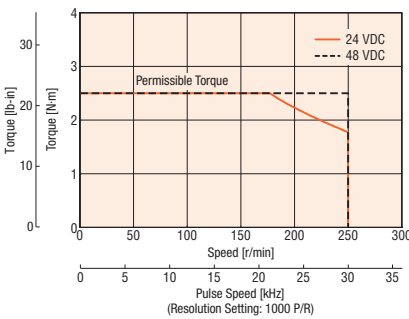
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC ± 4% specification applies.

Speed – Torque Characteristics (Reference values)

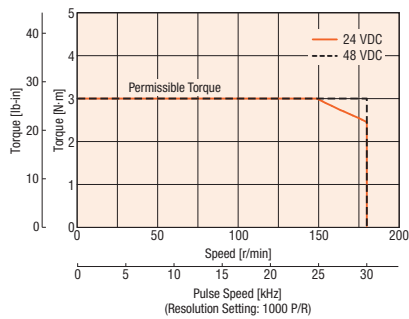
AR66 Gear Ratio 3.6



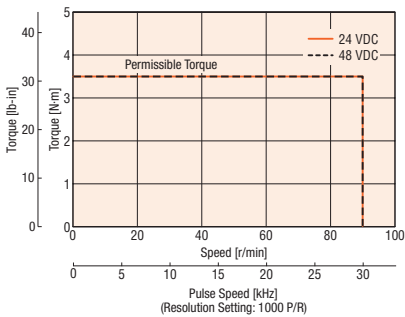
AR66 Gear Ratio 7.2



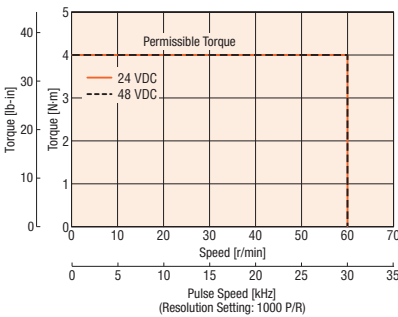
AR66 Gear Ratio 10



AR66 Gear Ratio 20



AR66 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/Geared **RKII**

DC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/0.36°/Geared **CRK**

1.8°/Geared **RBK**

1.8°/0.9°/Geared **CMK**

0.72° **All-in-One PKA**

Motor Only

1.8°/0.9° **PKP/PK**

Geared **PKP**

0.72°/0.36° **PKP**

Accessories

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



Specifications

Product Name	Built-in Controller Type	AR98□KD-T3.6-3	AR98□KD-T7.2-3	AR98□KD-T10-3	AR98□KD-T20-3	AR98□KD-T30-3
	Pulse Input Type	AR98□K-T3.6-3	AR98□K-T7.2-3	AR98□K-T10-3	AR98□K-T20-3	AR98□K-T30-3
Maximum Holding Torque	N·m (lb·in)	4.5 (39)	9 (79)			12 (106)
Rotor Inertia	J: kg·m ² (oz·in ²)	1100×10 ⁻⁷ (6.0) [1220×10 ⁻⁷ (6.7)]*1				
Gear Ratio		3.6	7.2	10	20	30
Resolution	Resolution Setting: 1000 P/R	0.1°/Pulse	0.05°/Pulse	0.036°/Pulse	0.018°/Pulse	0.012°/Pulse
Permissible Torque	N·m (lb·in)	4.5 (39)	9 (79)			12 (106)
Holding Torque at Motor Standstill	Power ON	N·m (lb·in)	3.6 (31)	7.2 (63)	9 (79)	12 (106)
	Electromagnetic Brake	N·m (lb·in)	3.6 (31)	7.2 (63)	9 (79)	12 (106)
Speed Range	r/min	0~500	0~250	0~180	0~90	0~60
Backlash	arcmin (degrees)	25 (0.42°)	15 (0.25°)			10 (0.17°)
Power Supply Input	Voltage	24 VDC ± 10% (24 VDC ± 5%)*2 / 48 VDC ± 5%*3				
	Maximum Input Current	A	2.5 (3.1)*2			
Electromagnetic Brake*4	Power Supply Input	24 VDC ± 5%*5 0.25 A				

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type.

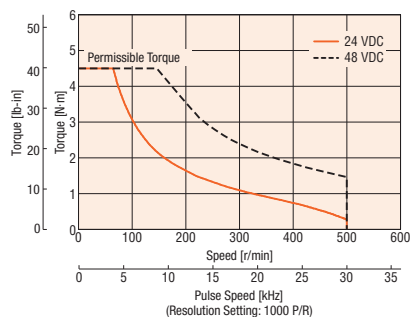
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

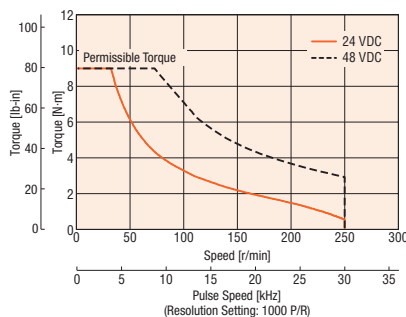
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC ± 4% specification applies.

Speed – Torque Characteristics (Reference values)

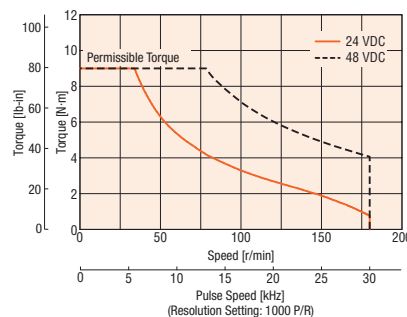
AR98 Gear Ratio 3.6



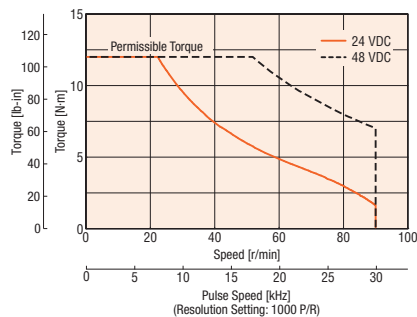
AR98 Gear Ratio 7.2



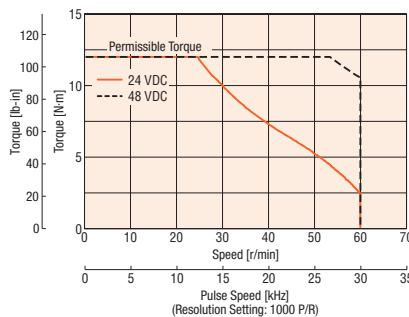
AR98 Gear Ratio 10



AR98 Gear Ratio 20



AR98 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

PS Geared Type Frame Size 28 mm (1.10 in.)

Specifications

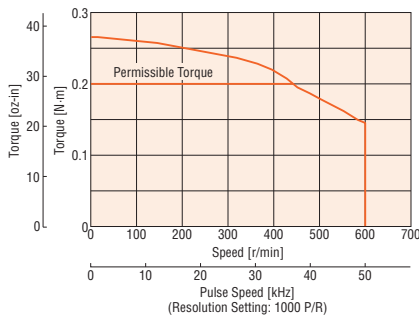


Product Name	Built-in Controller Type		AR24SAKD-PS5-3	AR24SAKD-PS7-3	AR24SAKD-PS10-3
	Pulse Input Type		AR24SAK-PS5-3	AR24SAK-PS7-3	AR24SAK-PS10-3
Maximum Holding Torque	N·m (oz·in)		0.2 (28)	0.3 (42)	0.5 (71)
Rotor Inertia	J: kg·m ² (oz·in ²)		11 × 10 ⁻⁷ (0.060)		
Gear Ratio			5	7.2	10
Resolution	Resolution Setting: 1000 P/R		0.072°/Pulse	0.05°/Pulse	0.036°/Pulse
Permissible Torque	N·m (oz·in)		0.2 (28)	0.3 (42)	0.5 (71)
Maximum Instantaneous Torque*	N·m (oz·in)		*	*	—
Holding Torque at Motor Standstill	Power ON	N·m (oz·in)	0.13 (18.4)	0.19 (26)	0.27 (38)
Speed Range	r/min		0~600	0~416	0~300
Backlash	arcmin (degrees)		35 (0.59°)		
Power Supply Input	Voltage		24 VDC ± 10% (24 VDC ± 5%)*1		
	Maximum Input Current		A 0.9 (1.3)*1		

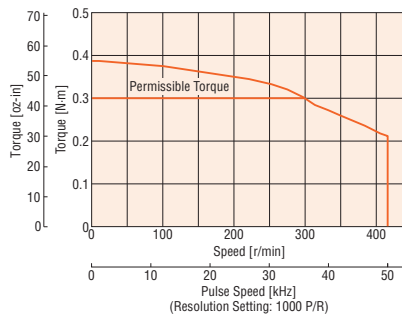
*For the geared motor output torque, refer to the speed – torque characteristics.
 *1 The parentheses () indicate the specifications for the built-in controller type.

Speed – Torque Characteristics (Reference values)

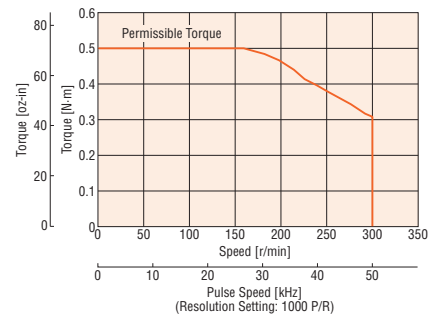
AR24 Gear Ratio 5



AR24 Gear Ratio 7.2



AR24 Gear Ratio 10



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 100°C (212°F) or less.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

0.72°/0.36° PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type	AR46□KD-PS5-3	AR46□KD-PS7-3	AR46□KD-PS10-3	AR46□KD-PS25-3	AR46□KD-PS36-3	AR46□KD-PS50-3
	Pulse Input Type	AR46□K-PS5-3	AR46□K-PS7-3	AR46□K-PS10-3	AR46□K-PS25-3	AR46□K-PS36-3	AR46□K-PS50-3
Maximum Holding Torque	N·m (lb·in)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)	3 (26)	3 (26)
Rotor Inertia	J: kg·m ² (oz·in ²)	58×10 ⁻⁷ (0.32) [73×10 ⁻⁷ (0.4)]*1					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Resolution Setting: 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)	3 (26)	3 (26)
Maximum Instantaneous Torque*	N·m (lb·in)	*	2 (17.7)	6 (53)	*	6 (53)	6 (53)
Holding Torque	Power ON	N·m (lb·in)	0.75 (6.6)	1 (8.8)	1.5 (13.2)	2.5 (22)	3 (26)
at Motor Standstill	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	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%					
	Maximum Input Current	1.4 (1.8)*2					
Electromagnetic Brake*3	Power Supply Input	24 VDC±5%*4 0.08 A					

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

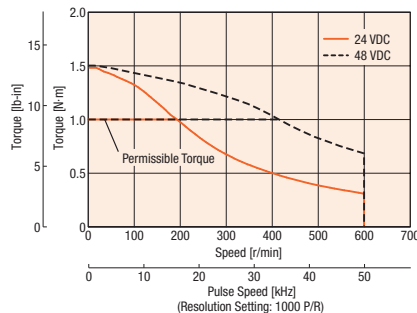
*2 The parentheses () indicate the specifications for the built-in controller type.

*3 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

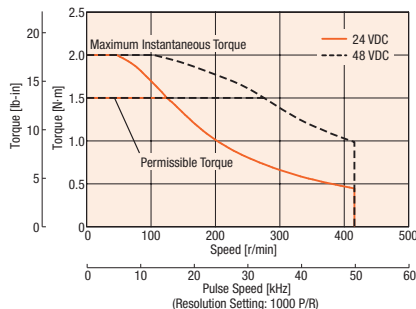
*4 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

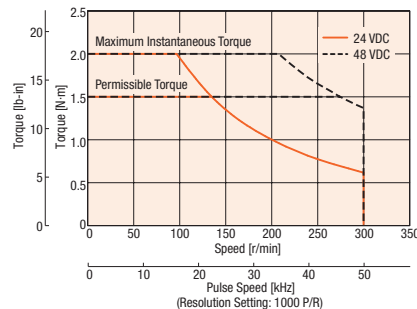
AR46 Gear Ratio 5



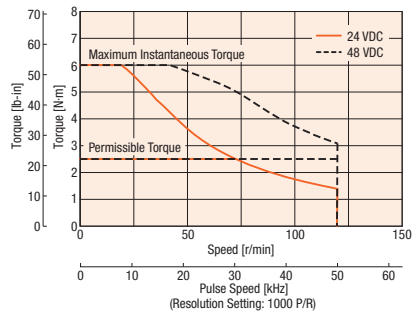
AR46 Gear Ratio 7.2



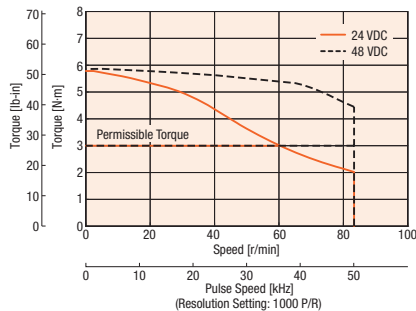
AR46 Gear Ratio 10



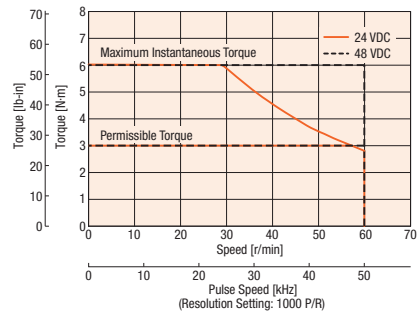
AR46 Gear Ratio 25



AR46 Gear Ratio 36



AR46 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 100°C (212°F) or less.
(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

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

Specifications



Product Name	Built-in Controller Type	AR66□KD-PS5-3	AR66□KD-PS7-3	AR66□KD-PS10-3	AR66□KD-PS25-3	AR66□KD-PS36-3	AR66□KD-PS50-3
	Pulse Input Type	AR66□K-PS5-3	AR66□K-PS7-3	AR66□K-PS10-3	AR66□K-PS25-3	AR66□K-PS36-3	AR66□K-PS50-3
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)	380×10 ⁻⁷ (2.1) [500×10 ⁻⁷ (2.7)]*1					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Resolution Setting: 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)		
Maximum Instantaneous Torque*	N·m (lb·in)	*	*	*	*	20 (177)	
Holding Torque	Power ON	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	8 (70)
at Motor Standstill	Electromagnetic Brake	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	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	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%*3					
	Maximum Input Current	A 3.1 (3.8)*2					
Electromagnetic Brake*4	Power Supply Input	24 VDC±5%*5			0.25 A		

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type.

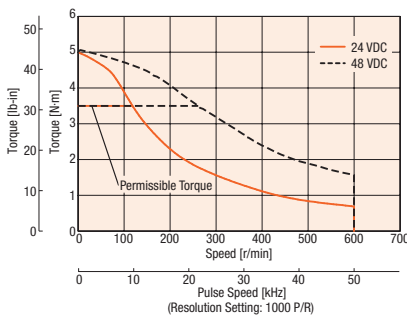
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

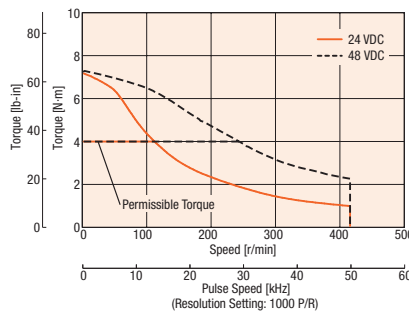
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

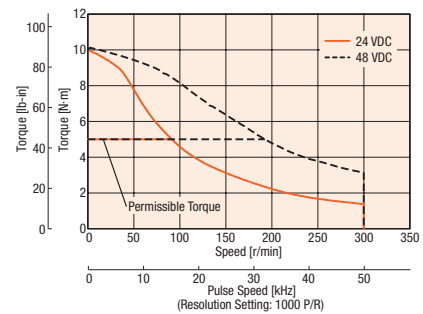
AR66 Gear Ratio 5



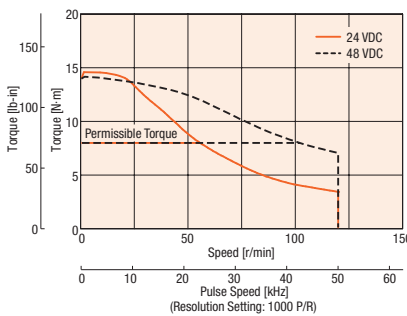
AR66 Gear Ratio 7.2



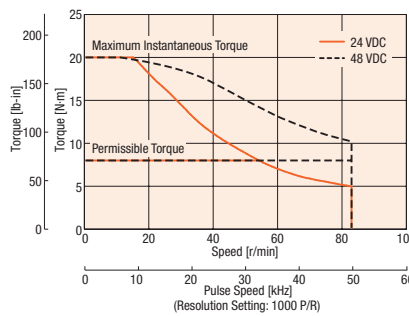
AR66 Gear Ratio 10



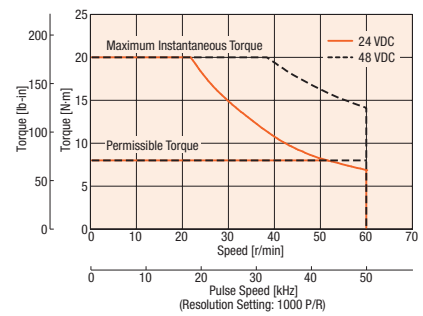
AR66 Gear Ratio 25



AR66 Gear Ratio 36



AR66 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 100°C (212°F) or less.

(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type		AR98□KD-PS5-3	AR98□KD-PS7-3	AR98□KD-PS10-3	AR98□KD-PS25-3	AR98□KD-PS36-3	AR98□KD-PS50-3
	Pulse Input Type		AR98□K-PS5-3	AR98□K-PS7-3	AR98□K-PS10-3	AR98□K-PS25-3	AR98□K-PS36-3	AR98□K-PS50-3
Maximum Holding Torque	N·m (lb·in)		10 (88)	14 (123)	20 (177)	37 (320)		
Rotor Inertia	J: kg·m ² (oz·in ²)		1100×10 ⁻⁷ (6.0) [1220×10 ⁻⁷ (6.7)]* ¹					
Gear Ratio			5	7.2	10	25	36	50
Resolution	Resolution Setting: 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)		10 (88)	14 (123)	20 (177)	37 (320)		
Maximum Instantaneous Torque*	N·m (lb·in)		*	*	*	*	60 (530)	
Holding Torque	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		0~400	0~277	0~200	0~80	0~55	0~40
Backlash	arcmin (degrees)		7 (0.12°)				9 (0.15°)	
Power Supply Input	Voltage		24 VDC±10% (24 VDC±5%)* ² /48 VDC±5%* ³					
	Maximum Input Current		2.5 (3.1)* ²					
Electromagnetic Brake* ⁴	Power Supply Input		24 VDC±5%* ⁵ 0.25 A					

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type.

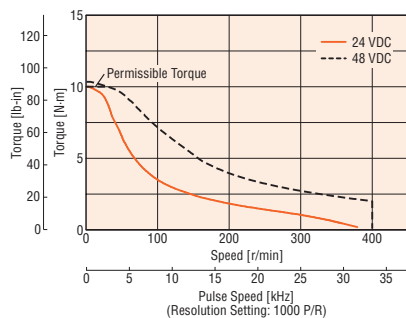
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

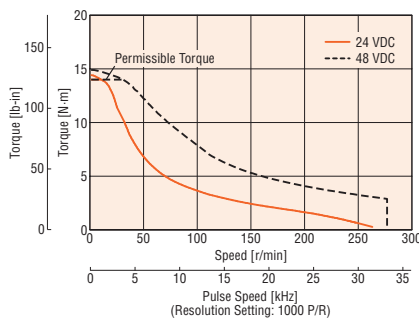
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

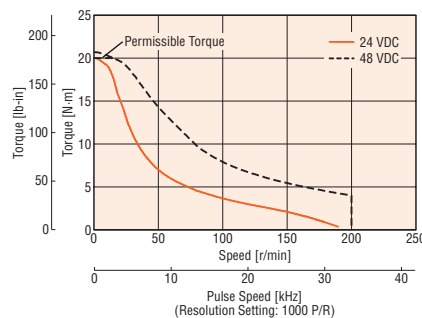
AR98 Gear Ratio 5



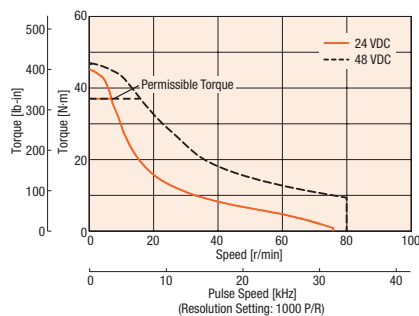
AR98 Gear Ratio 7.2



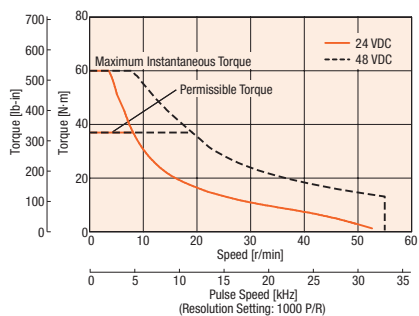
AR98 Gear Ratio 10



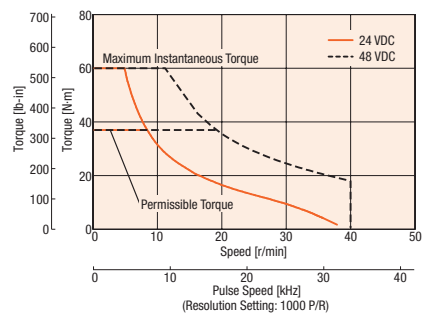
AR98 Gear Ratio 25



AR98 Gear Ratio 36



AR98 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

PN Geared Type Frame Size 28 mm (1.10 in.)

Specifications

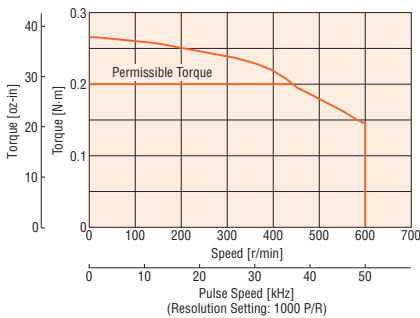


Product Name	Built-in Controller Type		AR24SAKD-N5-3	AR24SAKD-N7.2-3	AR24SAKD-N10-3
	Pulse Input Type		AR24SAK-N5-3	AR24SAK-N7.2-3	AR24SAK-N10-3
Maximum Holding Torque	N·m (oz·in)		0.2 (28)	0.3 (42)	0.5 (71)
Rotor Inertia	J: kg·m ² (oz·in ²)		11 × 10 ⁻⁷ (0.060)		
Gear Ratio			5	7.2	10
Resolution	Resolution Setting: 1000 P/R		0.072°/Pulse	0.05°/Pulse	0.036°/Pulse
Permissible Torque	N·m (oz·in)		0.2 (28)	0.3 (42)	0.5 (71)
Maximum Instantaneous Torque*	N·m (oz·in)		*	*	—
Holding Torque at Motor Standstill	Power ON	N·m (oz·in)	0.13 (18.4)	0.19 (26)	0.27 (38)
Speed Range	r/min		0~600	0~416	0~300
Backlash	arcmin (degrees)		3 (0.05°)		
Power Supply Input	Voltage		24 VDC ± 10% (24 VDC ± 5%)*1		
	Maximum Input Current		A 0.9 (1.3)*1		

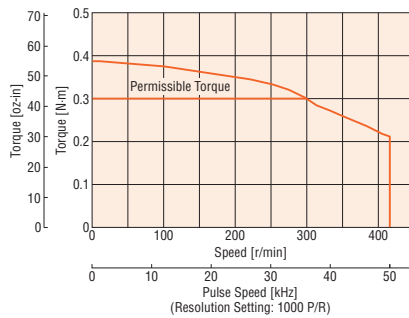
*For the geared motor output torque, refer to the speed – torque characteristics.
 *1 The parentheses () indicate the specifications for the built-in controller type.

Speed – Torque Characteristics (Reference values)

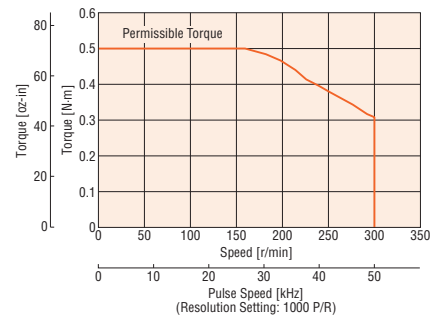
AR24 Gear Ratio 5



AR24 Gear Ratio 7.2



AR24 Gear Ratio 10



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 100°C (212°F) or less.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared Q_{STEP} AR

0.36°/Geared Q_{STEP} Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

0.72°/0.36° PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type	AR46□KD-N5-3	AR46□KD-N7.2-3	AR46□KD-N10-3
	Pulse Input Type	AR46□K-N5-3	AR46□K-N7.2-3	AR46□K-N10-3
Maximum Holding Torque	N·m (lb·in)	1.35 (11.9)	1.5 (13.2)	
Rotor Inertia	J: kg·m ² (oz·in ²)	58×10^{-7} (0.32) [73×10^{-7} (0.4)]* ¹		
Gear Ratio		5	7.2	10
Resolution	Resolution Setting: 1000 P/R	0.072°/Pulse	0.05°/Pulse	0.036°/Pulse
Permissible Torque	N·m (lb·in)	1.5 (13.2)		
Maximum Instantaneous Torque*	N·m (lb·in)	2 (17.7)		
Holding Torque at Motor Standstill	Power ON	N·m (lb·in)	0.75 (6.6)	1 (8.8)
	Electromagnetic Brake	N·m (lb·in)	0.75 (6.6)	1 (8.8)
Speed Range	r/min	0~600	0~416	0~300
Backlash	arcmin (degrees)	2 (0.034°)		
Power Supply Input	Voltage	24 VDC ± 10% (24 VDC ± 5%)* ² /48 VDC ± 5%		
	Maximum Input Current	A	1.4 (1.8)* ²	
Electromagnetic Brake* ³	Power Supply Input	24 VDC ± 5%* ⁴ 0.08 A		

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

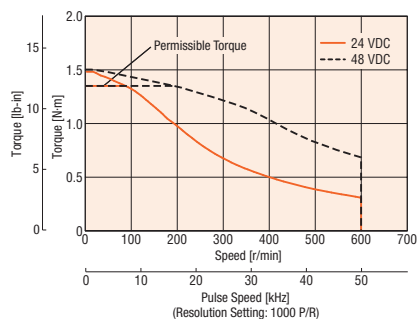
*² The parentheses () indicate the specifications for the built-in controller type.

*³ For the pulse input type, a separate power supply for the electromagnetic brake is also required.

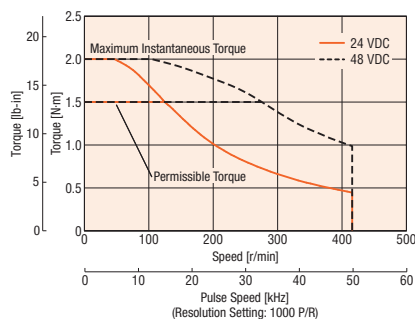
*⁴ If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC ± 4% specification applies.

Speed – Torque Characteristics (Reference values)

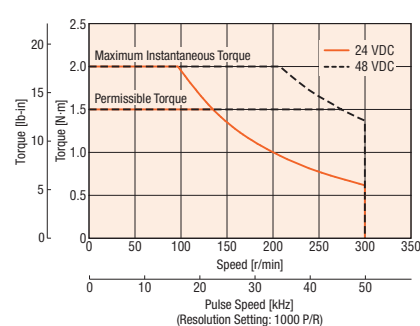
AR46 Gear Ratio 5



AR46 Gear Ratio 7.2



AR46 Gear Ratio 10



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 100°C (212°F) or less.
(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

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

Specifications



Product Name	Built-in Controller Type	AR66□KD-N5-3	AR66□KD-N7.2-3	AR66□KD-N10-3	AR66□KD-N25-3	AR66□KD-N36-3	AR66□KD-N50-3
	Pulse Input Type	AR66□K-N5-3	AR66□K-N7.2-3	AR66□K-N10-3	AR66□K-N25-3	AR66□K-N36-3	AR66□K-N50-3
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)	380×10 ⁻⁷ (2.1) [500×10 ⁻⁷ (2.7)]*1					
Gear Ratio		5	7.2	10	25	36	50
Resolution	Resolution Setting: 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)		
Maximum Instantaneous Torque*	N·m (lb·in)	*	*	*	*	20 (177)	
Holding Torque	Power ON	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	8 (70)
at Motor Standstill	Electromagnetic Brake	N·m (lb·in)	2.5 (22)	3.6 (31)	5 (44)	7.6 (67)	8 (70)
Speed Range	r/min	0~600	0~416	0~300	0~120	0~83	0~60
Backlash	arcmin (degrees)	2 (0.034°)			3 (0.05°)		
Power Supply Input	Voltage	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%*3					
	Maximum Input Current	A 3.1 (3.8)*2					
Electromagnetic Brake*4	Power Supply Input	24 VDC±5%*5			0.25 A		

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type.

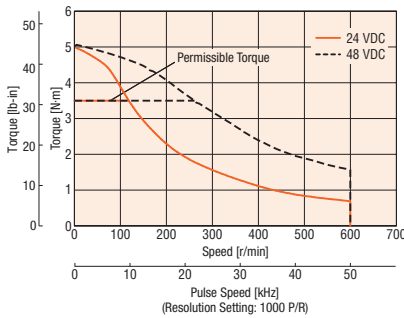
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

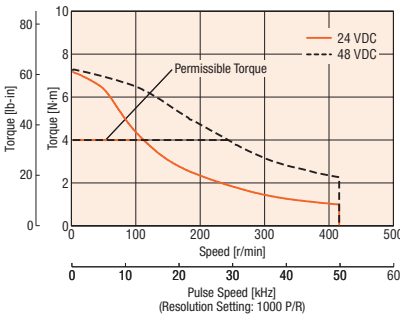
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

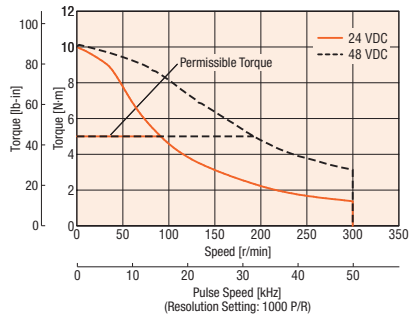
AR66 Gear Ratio 5



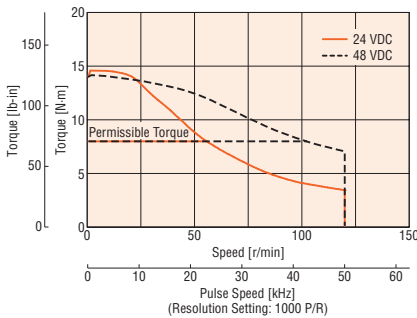
AR66 Gear Ratio 7.2



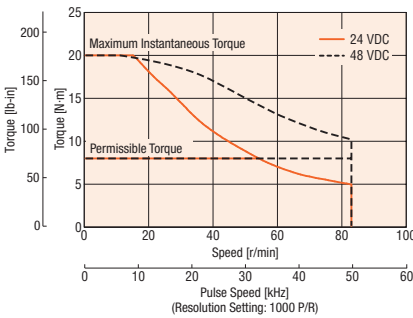
AR66 Gear Ratio 10



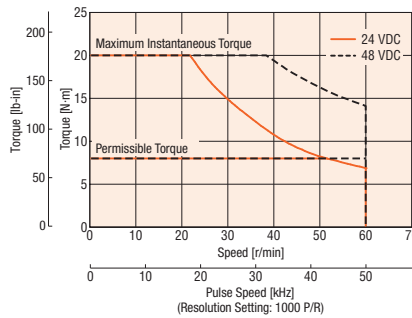
AR66 Gear Ratio 25



AR66 Gear Ratio 36



AR66 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared *Q*STEP AR

0.36°/Geared *Q*STEP Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared *Q*STEP AR

0.36°/Geared Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

0.72°/0.36° PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type Pulse Input Type	AR98□KD-N5-3	AR98□KD-N7.2-3	AR98□KD-N10-3	AR98□KD-N25-3	AR98□KD-N36-3	AR98□KD-N50-3	
		AR98□K-N5-3	AR98□K-N7.2-3	AR98□K-N10-3	AR98□K-N25-3	AR98□K-N36-3	AR98□K-N50-3	
Maximum Holding Torque	N·m (lb·in)	10 (88)	14 (123)	20 (177)	37 (320)			
Rotor Inertia	J: kg·m ² (oz·in ²)	1100×10 ⁻⁷ (6.0) [1220×10 ⁻⁷ (6.7)]*1						
Gear Ratio		5	7.2	10	25	36	50	
Resolution	Resolution Setting: 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)	10 (88)	14 (123)	20 (177)	37 (320)			
Maximum Instantaneous Torque*	N·m (lb·in)	*	*	*	*	60 (530)		
Holding Torque	Power ON	N·m (lb·in)	5 (44)	7.2 (63)	10 (88)	25 (220)	36 (310)	37 (320)
at Motor Standstill	Electromagnetic Brake	N·m (lb·in)	5 (44)	7.2 (63)	10 (88)	25 (220)	36 (310)	37 (320)
Speed Range	r/min	0~400	0~277	0~200	0~80	0~55	0~40	
Backlash	arcmin (degrees)	2 (0.034°)				3 (0.05°)		
Power Source	Voltage	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%*3						
	Maximum Input Current	A 2.5 (3.1)*2						
Electromagnetic Brake*4	Power Supply Input	24 VDC±5%*5 0.25 A						

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

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

*2 The parentheses () indicate the specifications for the built-in controller type.

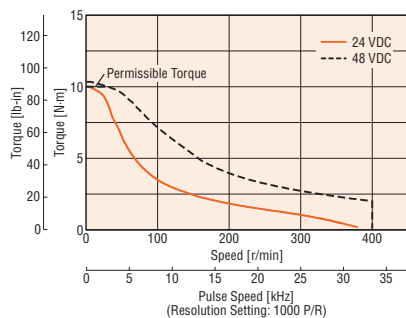
*3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertial ratio or less and twice the safety factor or more when calculating the acceleration torque.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

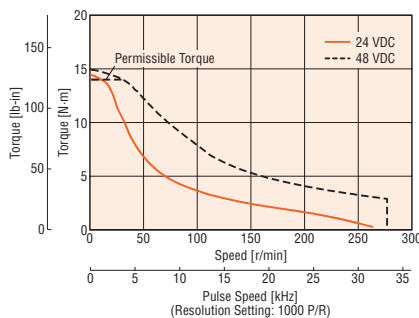
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Speed – Torque Characteristics (Reference values)

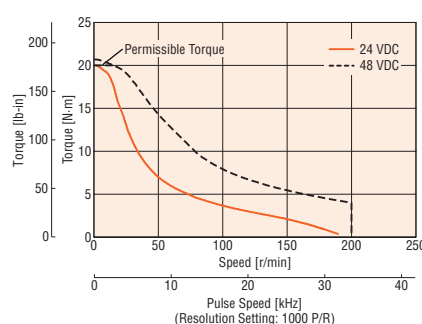
AR98 Gear Ratio 5



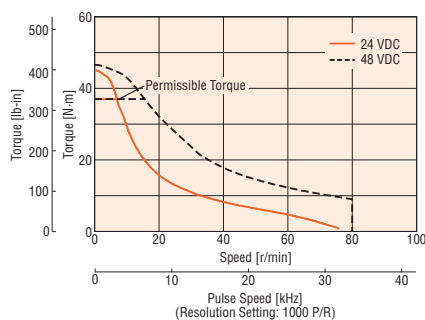
AR98 Gear Ratio 7.2



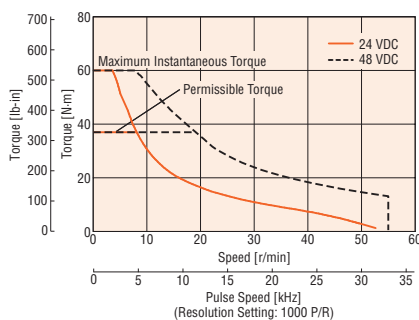
AR98 Gear Ratio 10



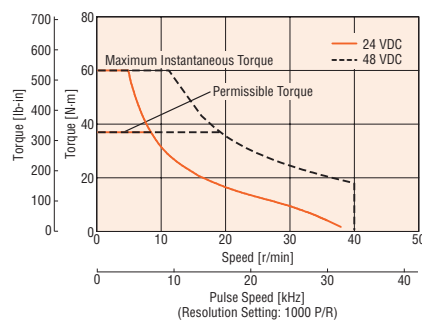
AR98 Gear Ratio 25



AR98 Gear Ratio 36



AR98 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Harmonic Geared Type Frame Size 30 mm (1.18 in.), 42 mm (1.65 in.)

Specifications



Product Name	Built-in Controller Type	AR24SAKD-H50-3	AR24SAKD-H100-3	AR46□KD-H50-3	AR46□KD-H100-3
	Pulse Input Type	AR24SAK-H50-3	AR24SAK-H100-3	AR46□K-H50-3	AR46□K-H100-3
Maximum Holding Torque	N·m (oz·in)	1.8 (250)	2.4 (340)	3.5 (30)	5 (44)
Rotor Inertia	J: kg·m ² (oz·in ²)	14×10 ⁻⁷ (0.077)		75×10 ⁻⁷ (0.41)	[90×10 ⁻⁷ (0.49)] ^{*2}
Gear Ratio		50	100	50	100
Resolution	Resolution Setting: 1000 P/R	0.0072°/Pulse	0.0036°/Pulse	0.0072°/Pulse	0.0036°/Pulse
Permissible Torque	N·m (oz·in)	1.8 (250)	2.4 (340)	3.5 (30)	5 (44)
Maximum Instantaneous Torque ^{*3}	N·m (oz·in)	*	*	8.3 (73)	11 (97)
Holding Torque at Motor Standstill	Power ON N·m (oz·in) Electromagnetic Brake N·m (oz·in)	1.3 (184) —	2.4 (340) —	3.5 (30) 3.5 (30)	5 (44) 5 (44)
Speed Range	r/min	0~70	0~35	0~70	0~35
Lost Motion (Load Torque)	arcmin	1.5 max. (±0.09 N·m)	1.5 max. (±0.12 N·m)	1.5 max. (±0.16 N·m)	1.5 max. (±0.2 N·m)
Power Supply Input	Voltage	24 VDC±10% (24 VDC±5%) ^{*3}		24 VDC±10% (24 VDC±5%) ^{*3} /48 VDC±5%	
	Maximum Input Current	A		1.4 (1.8) ^{*3}	
Electromagnetic Brake ^{*4}	Power Supply Input	—	—	24 VDC±5% ^{*5} 0.08 A	

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

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

*1 Excluding **AR24**.

*2 The brackets [] indicate the specifications for the electromagnetic brake product.

*3 The parentheses () indicate the specifications for the built-in controller type.

*4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.

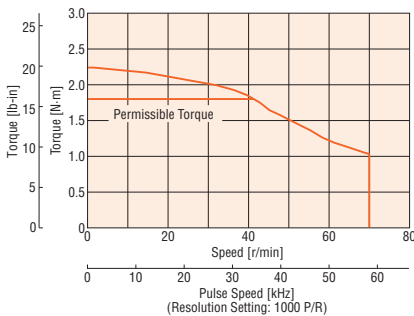
*5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Note

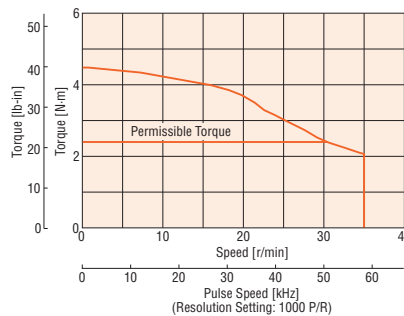
● The rotor inertia represents the inertia of the harmonic gear converted to motor shaft values.

Speed – Torque Characteristics (Reference values)

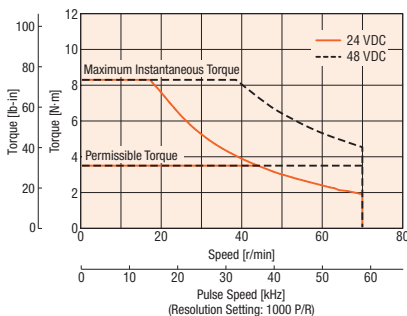
AR24 Gear Ratio 50



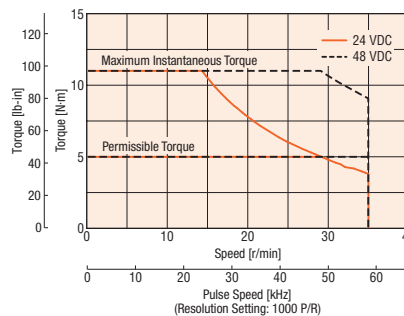
AR24 Gear Ratio 100



AR46 Gear Ratio 50



AR46 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 100°C (212°F) or less.

(When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
Q5STEP
AR

0.36°/Geared
Q5STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
Q5STEP
AR

0.36°/Geared
Q5STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

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



Specifications

Product Name	Built-in Controller Type	AR66□KD-H50-3	AR66□KD-H100-3	AR98□KD-H50-3	AR98□KD-H100-3	
	Pulse Input Type	AR66□K-H50-3	AR66□K-H100-3	AR98□K-H50-3	AR98□K-H100-3	
Maximum Holding Torque	N·m (lb·in)	5.5 (48)	8 (70)	25 (220)	37 (320)	
Rotor Inertia	J: kg·m ² (oz·in ²)	415×10 ⁻⁷ (2.3) [535×10 ⁻⁷ (2.9)]*1		1300×10 ⁻⁷ (7.1) [1420×10 ⁻⁷ (7.8)]*1		
Gear Ratio		50	100	50	100	
Resolution	Resolution Setting: 1000 P/R	0.0072°/Pulse	0.0036°/Pulse	0.0072°/Pulse	0.0036°/Pulse	
Permissible Torque	N·m (lb·in)	5.5 (48)	8 (70)	25 (220)	37 (320)	
Maximum Instantaneous Torque	N·m (lb·in)	18 (159)	28 (240)	35 (300)	55 (480)	
Holding Torque at Motor Standstill	Power ON Electromagnetic Brake	N·m (lb·in) N·m (lb·in)	5.5 (48) 5.5 (48)	8 (70) 8 (70)	25 (220) 25 (220)	37 (320) 37 (320)
Speed Range	r/min	0~60	0~30	0~40	0~20	
Lost Motion (Load Torque)	arcmin	0.7 max. (±0.28 N·m)	0.7 max. (±0.39 N·m)	1.5 max. (±1.2 N·m)		
Power Supply Input	Voltage	24 VDC±10% (24 VDC±5%)*2/48 VDC±5%*3				
	Maximum Input Current	A	3.1 (3.8)*2		2.5 (3.1)*2	
Electromagnetic Brake*4	Power Supply Input	24 VDC±5%*5		0.25 A		

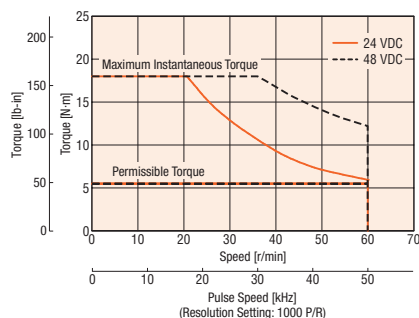
- Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.
- *1 The brackets [] indicate the specifications for the electromagnetic brake product.
- *2 The parentheses () indicate the specifications for the built-in controller type.
- *3 When the motor is operated from 48 VDC input, as a reference, use an inertial load 10 times the rotor inertia ratio or less and twice the safety factor or more when calculating the acceleration torque.
- *4 For the pulse input type, a separate power supply for the electromagnetic brake is also required.
- *5 If the wiring distance between the motor and driver is extended to 20 m (65.6 ft.) or longer using an accessory cable (sold separately), the 24 VDC±4% specification applies.

Note

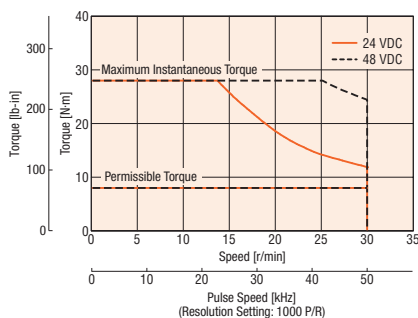
● The rotor inertia represents the inertia of the harmonic gear converted to motor shaft values.

Speed – Torque Characteristics (Reference values)

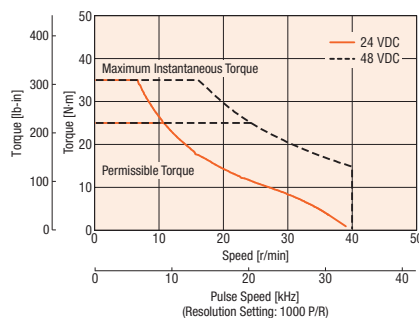
AR66 Gear Ratio 50



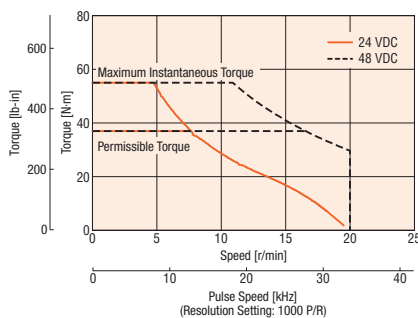
AR66 Gear Ratio 100



AR98 Gear Ratio 50



AR98 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 100°C (212°F) or less. (When conforming to the UL Standards, the temperature of the motor case must be kept at 75°C (167°F) or less, since the motor is recognized as heat-resistant class A.)

Driver Specifications

		Built-in Controller Type	Pulse Input Type
Max. Input Pulse Frequency		—	Line driver output by programmable controller: 500 kHz (When the pulse duty is 50%) Open-collector output by programmable controller: 250 kHz (When the pulse duty is 50%)*1 Negative Logic Pulse Input (Initial value)
Number of Positioning Data Sets		64 Points	—
Positioning Operation	Independent	○	—
	Linked	○	—
	Linked 2	○	—
	Sequential	○	—
	Direct	○	—
Pushing		○	○*2
Continuous Operation		○	—
JOG Operation		○	—
Return-To-Home Operation		○	—
Test Operation		○	○*2
Absolute Backup System		○	—
Control Module OPX-2A		○	○
Data Setting Software MEXE02		○	○

*1 The value when the general-purpose cable **CC36D1E** (sold separately) is used. General-Purpose Cables → Page A-283

*2 Set with extended function (**MEXE02**)

Built-in Controller Type RS-485 Communication Specification

Protocol	Modbus Protocol (Modbus RTU mode)
Electrical Characteristics	EIA-485 Based, Straight Cable Use shielded twisted-pair cables (TIA/EIA-568B CAT5e or better recommended). The maximum total extension length is 50 m (164 ft.).
Communication Mode	Half duplex and start-stop synchronization (data: 8 bits, stop bit: 1 bit or 2 bits, parity: none, even, or odd)
Baud Rate	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Connection Type	Up to 31 units can be connected to a single programmable controller (master unit).

General Specifications

	Motor	Driver	
		Built-in Controller Type	Pulse Input Type
Thermal Class	130 (B) [Certified as 105 (A) by UL.*1]	—	
Insulation Resistance	100 MΩ or more when a 500 VDC megger is applied between the following places: • Case – Motor and Sensor Windings • Case – Electromagnetic Brake Windings	100 MΩ or more when a 500 VDC megger is applied between the following places: • FG Terminal – Power Input Terminal	—
Dielectric Strength	Sufficient to withstand the following for 1 minute: • Case – Motor and Sensor Windings 1.0 kVAC*2, 50 Hz or 60 Hz • Case – Electromagnetic Brake Windings 1.0 kVAC, 50 Hz or 60 Hz	Sufficient to withstand the following for 1 minute: • FG Terminal – Power Input Terminal 500 VAC, 50 Hz or 60 Hz	—
Operating Environment (In operation)	Ambient Temperature	-10~+50°C (+14~+122°F) (non-freezing)*3: Standard type, TH, PS, PN geared types 0~+40°C (+32~+104°F) (non-freezing)*3: Harmonic geared type	
	Ambient Humidity	85% or less (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	IP65 (AR24 and AR26 : IP20)	IP10	IP20
Stop Position Accuracy	AR24, AR26, AR46 : ±4 arcmin (±0.067°) AR66, AR69, AR98 : ±3 arcmin (±0.05°)		
Shaft Runout	0.05 mm (0.002 in.) T.I.R.*4	—	—
Concentricity	0.075 mm (0.003 in.) T.I.R.*4	—	—
Perpendicularity	0.075 mm (0.003 in.) T.I.R.*4	—	—

*1 Excluding **AR24** and **AR26**.

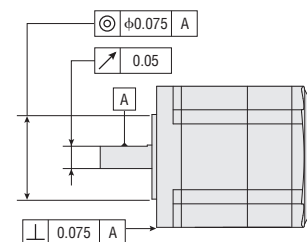
*2 **AR24** and **AR26** are 0.5 kVAC.

*3 When a heat sink of a capacity at least equivalent to an aluminum plate with a size of 100×100 mm (3.94×3.94 in.) and 6 mm (0.24 in.) thickness.

*4 T. I. R. (Total Indicator Reading): The total dial gauge reading when the measurement section is rotated once around the reference axis center.

Note

● Do not measure insulation resistance or perform the dielectric strength test while the motor and driver are connected.



Load Torque – Driver Input Current Characteristics

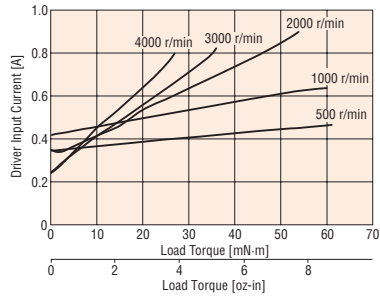
This is the relationship between the load torque and driver input current at each speed when the motor is operated. From these characteristics, the current capacity required when used for multiple axes can be estimated. For geared motors, convert to torque and speed at the motor shaft.

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

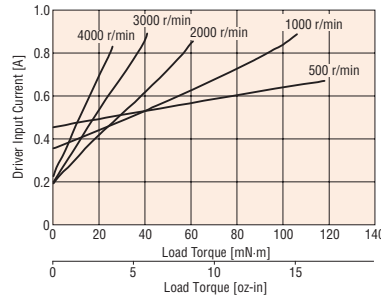
$$\text{Motor shaft torque [N·m (oz·in)]} = \frac{\text{Gear output shaft torque}}{\text{Gear ratio}}$$

● 24 VDC

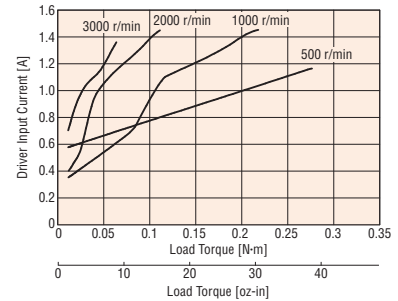
AR24



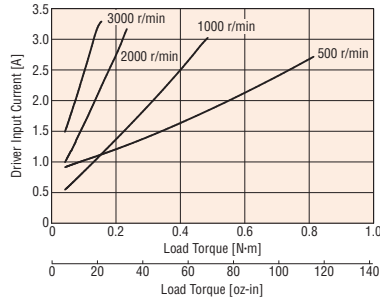
AR26



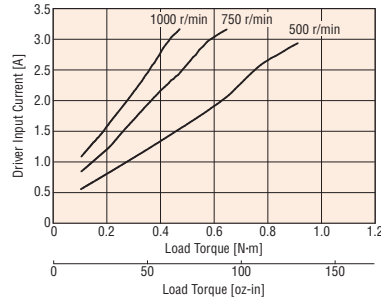
AR46



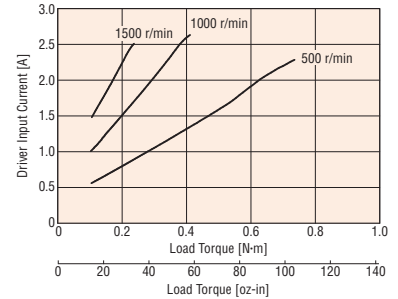
AR66



AR69

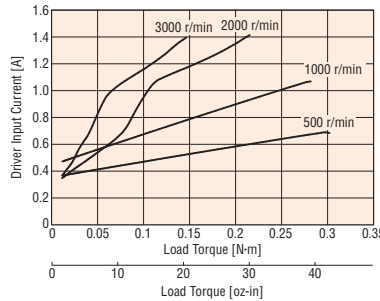


AR98

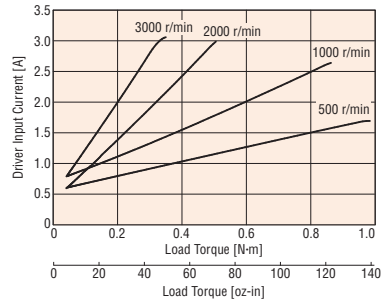


● 48 VDC

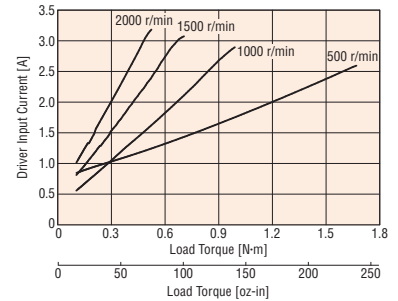
AR46



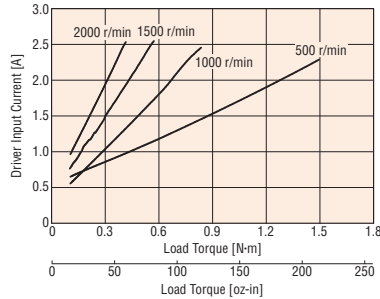
AR66



AR69



AR98



Permissible Radial Load and Permissible Axial Load

→ Page A-16

Dimensions Unit = mm (in.)

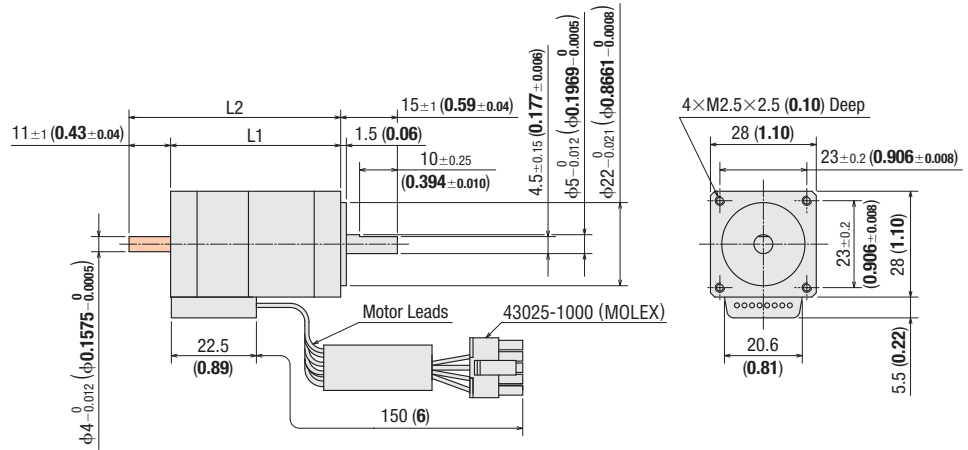
● Motor

◇ Standard Type

Frame Size 28 mm (1.10 in.)

2D & 3D CAD

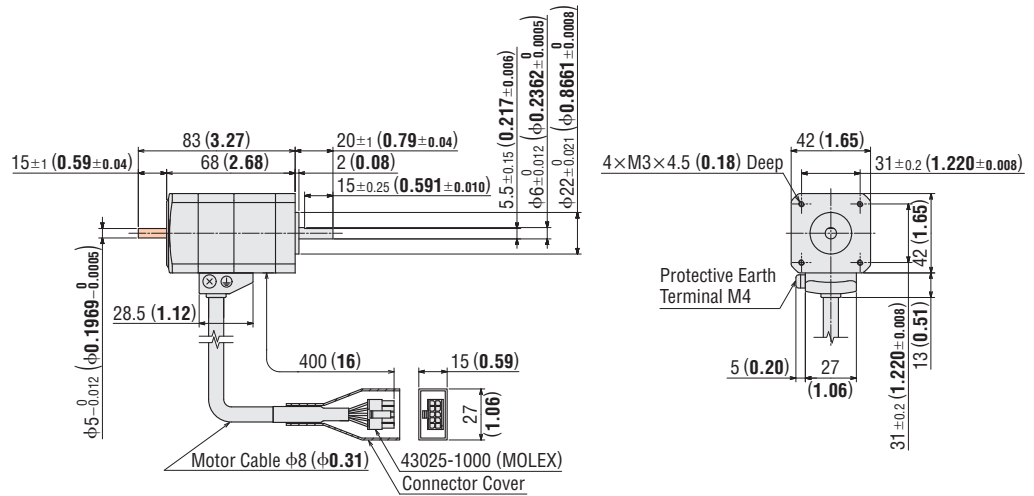
Product Name		Motor Product Name	L1	L2	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR24SAKD-3	AR24SAK-3	ARM24SAK	45 (1.77)	—	0.15 (5.3)	B705
AR24SBKD-3	AR24SBK-3	ARM24SBK				
AR26SAKD-3	AR26SAK-3	ARM26SAK	65 (2.56)	—	0.22 (7.8)	B706
AR26SBKD-3	AR26SBK-3	ARM26SBK				



Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name		Motor Product Name	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input			
AR46AKD-3	AR46AK-3	ARM46AK	0.47 (1.03)	B516
AR46BKD-3	AR46BK-3	ARM46BK		



● These dimensions are for double shaft motors. For single shaft motors, ignore the shaded areas.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/Geared **RKII**

DC Input Motor & Driver

0.36°/Geared **Q_{STEP} AR**

0.36°/Geared **Q_{STEP} Absolute AZ**

0.72°/0.36°/Geared **CRK**

1.8°/Geared **RBK**

1.8°/0.9°/Geared **CMK**

0.72° All-in-One **PKA**

Motor Only

1.8°/0.9° **PKP/PK**

Geared **PKP**

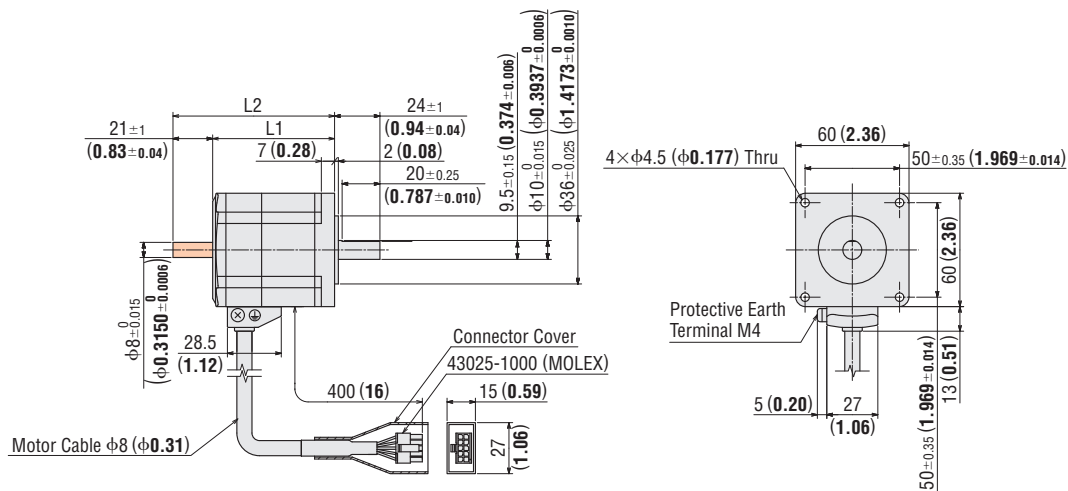
0.72°/0.36° **PKP**

Accessories

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

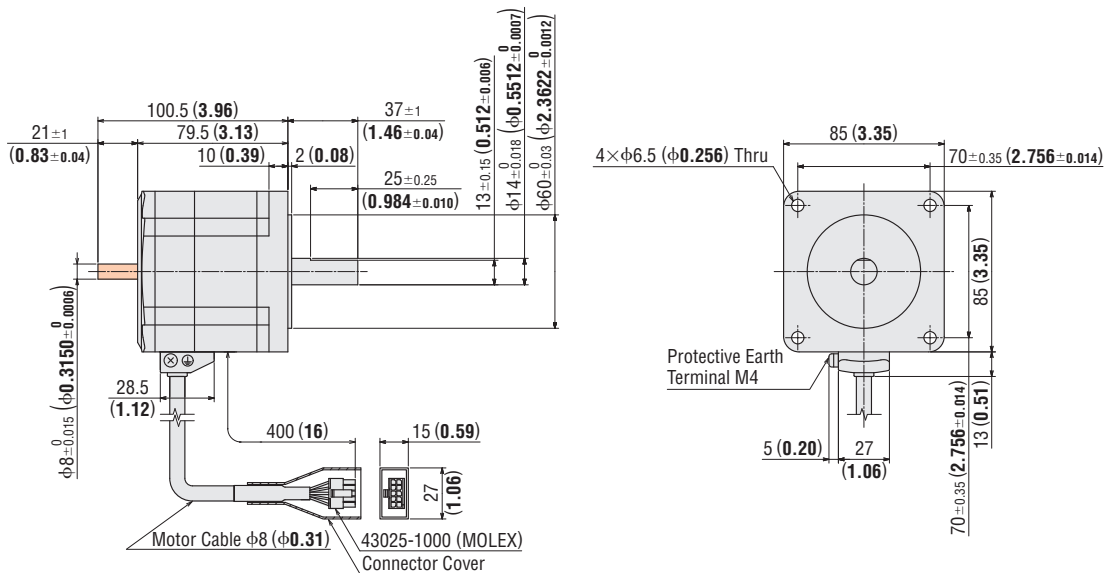
Product Name		Motor Product Name	L1	L2	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR66AKD-3	AR66AK-3	ARM66AK	64.5 (2.54)	-	0.9 (1.98)	B517
AR66BKD-3	AR66BK-3	ARM66BK				
AR69AKD-3	AR69AK-3	ARM69AK	90 (3.54)	-	1.4 (3.1)	B518
AR69BKD-3	AR69BK-3	ARM69BK				



Frame Size 85 mm (3.35 in.)

2D & 3D CAD

Product Name		Motor Product Name	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input			
AR98AKD-3	AR98AK-3	ARM98AK	1.9 (4.2)	B519
AR98BKD-3	AR98BK-3	ARM98BK		



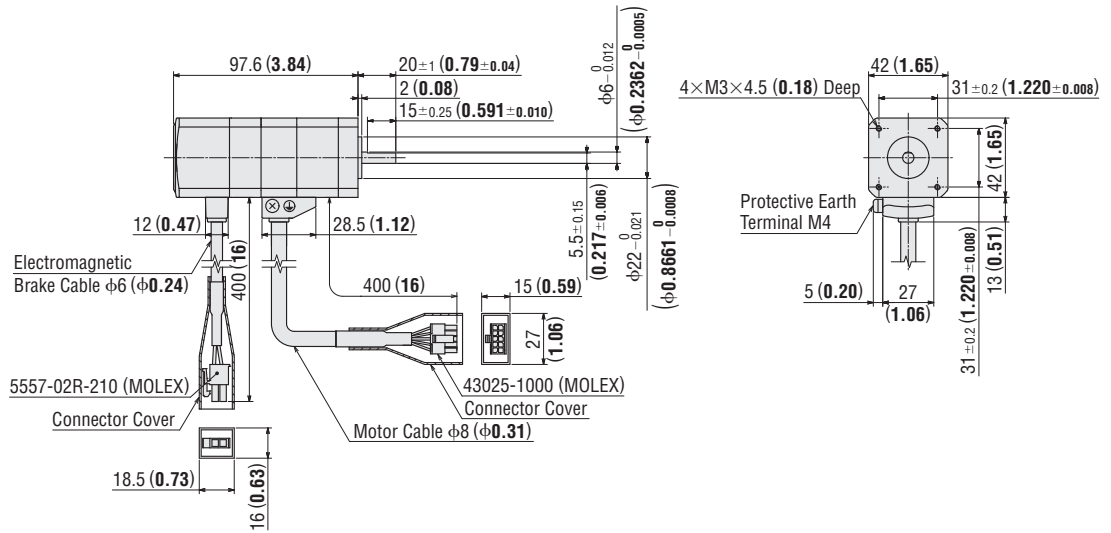
● These dimensions are for double shaft motors. For single shaft motors, ignore the shaded areas.

◇ Standard Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

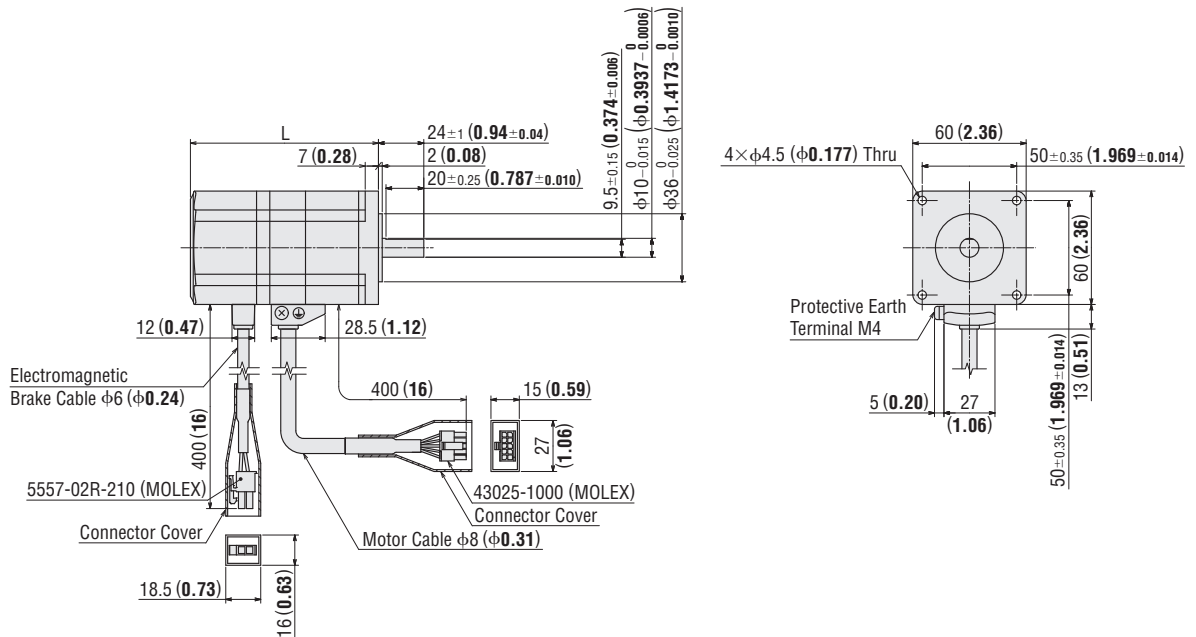
Product Name		Motor Product Name	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input			
AR46MKD-3	AR46MK-3	ARM46MK	0.62 (1.36)	B520



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR66MKD-3	AR66MK-3	ARM66MK	99.5 (3.92)	1.2 (2.6)	B521
AR69MKD-3	AR69MK-3	ARM69MK	125 (4.92)	1.7 (3.7)	B522



Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

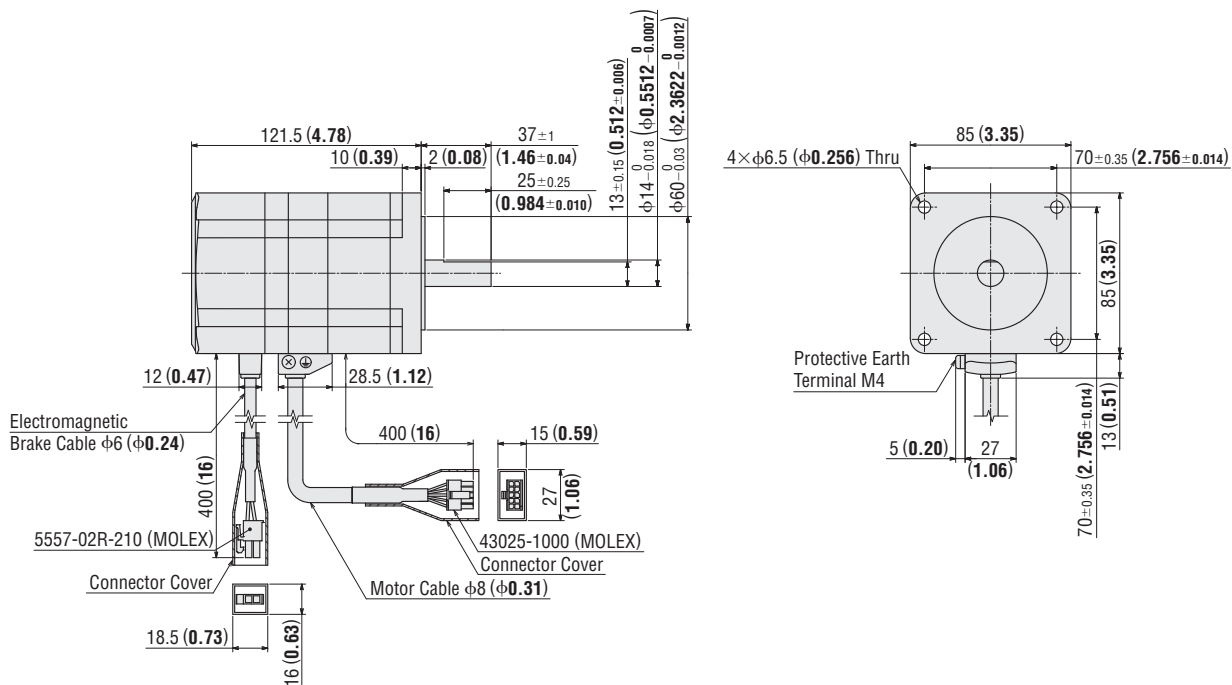
0.72°/0.36°
PKP

Accessories

Frame Size 85 mm (3.35 in.)

2D & 3D CAD

Product Name		Motor Product Name	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input			
AR98MKD-3	AR98MK-3	ARM98MK	2.5 (5.5)	B523

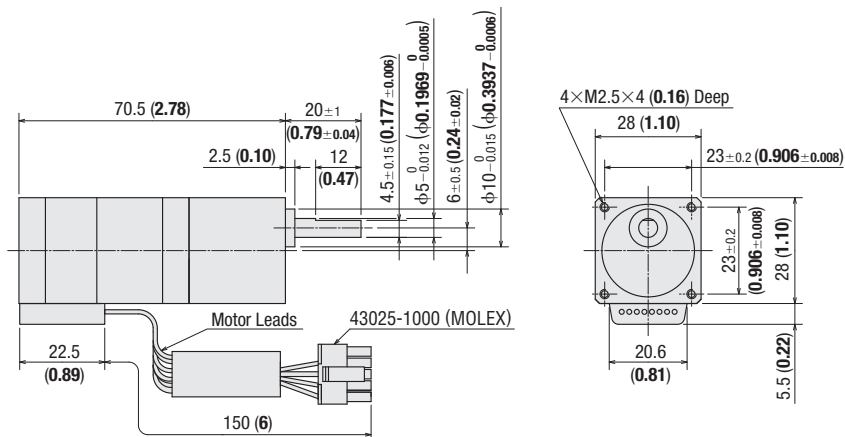


◇ TH Geared Type

Frame Size 28 mm (1.10 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR24SAKD-T-3	AR24SAK-T-3	ARM24SAK-T	7.2, 10, 20, 30	0.21 (7.4)	B707

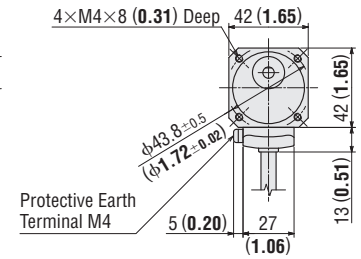
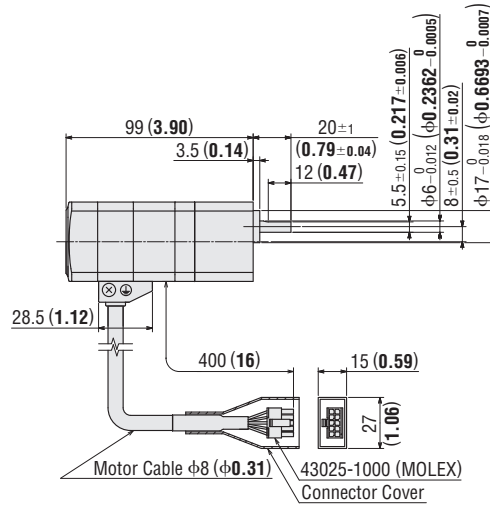


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

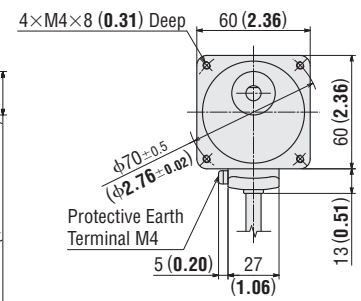
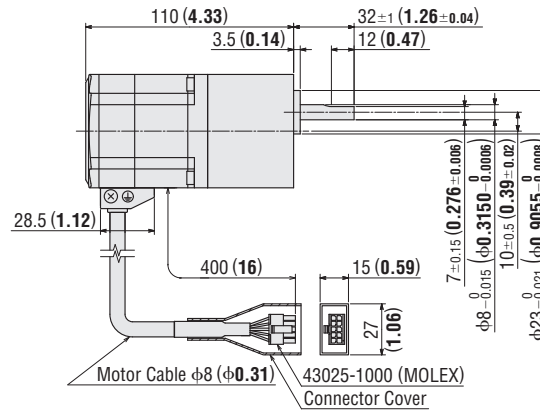
Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46AKD-T ■-3	AR46AK-T ■-3	ARM46AK-T■	3.6, 7.2, 10, 20, 30	0.62 (1.36)	B524



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR66AKD-T ■-3	AR66AK-T ■-3	ARM66AK-T■	3.6, 7.2, 10, 20, 30	1.3 (2.9)	B525



Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
Q₅STEP
AR

0.36°/Geared
Q₅STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
Q₅STEP
AR

0.36°/Geared
Q₅STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

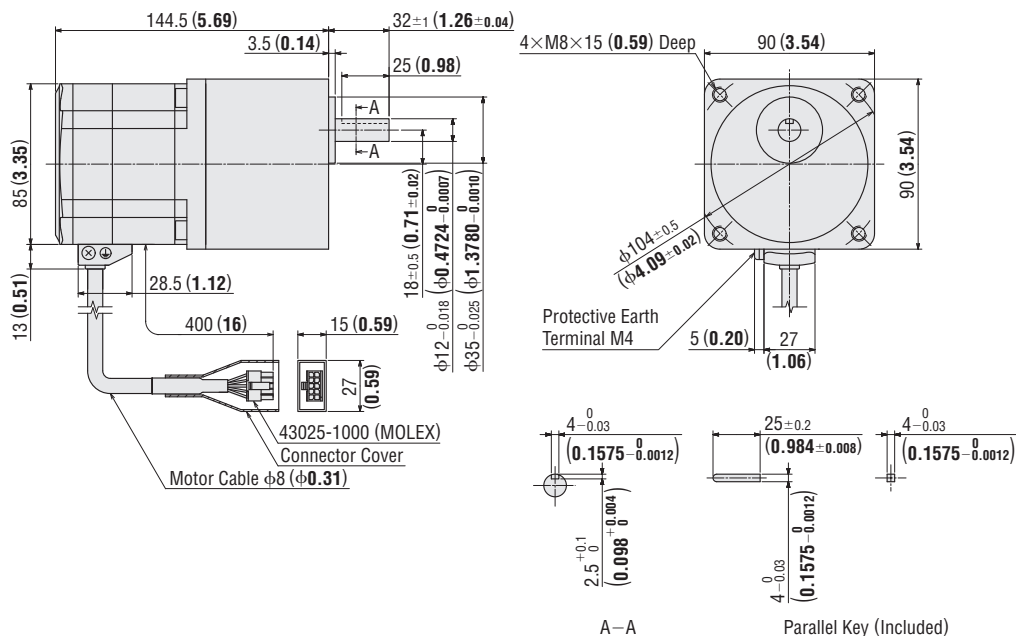
Accessories

● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR98AKD-T ■-3	AR98AK-T ■-3	ARM98AK-T■	3.6, 7.2, 10, 20, 30	3.1 (6.8)	B526

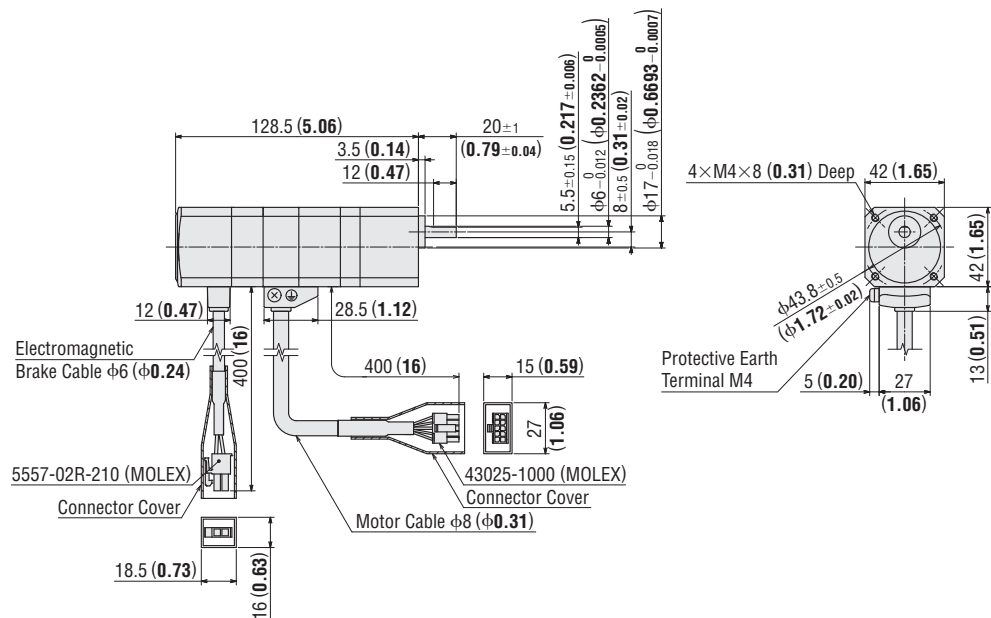


◇ **TH** Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46MKD-T ■-3	AR46MK-T ■-3	ARM46MK-T■	3.6, 7.2, 10, 20, 30	0.77 (1.69)	B527

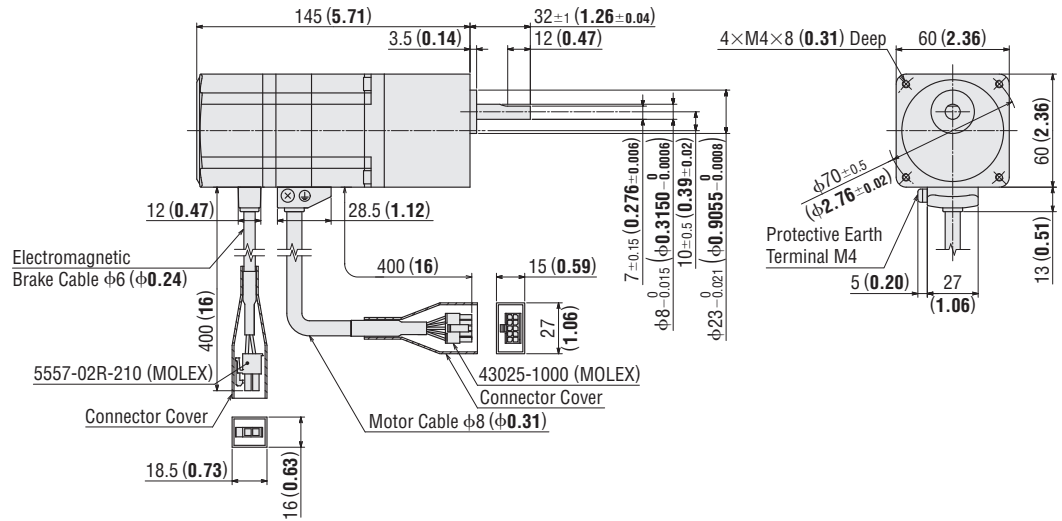


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

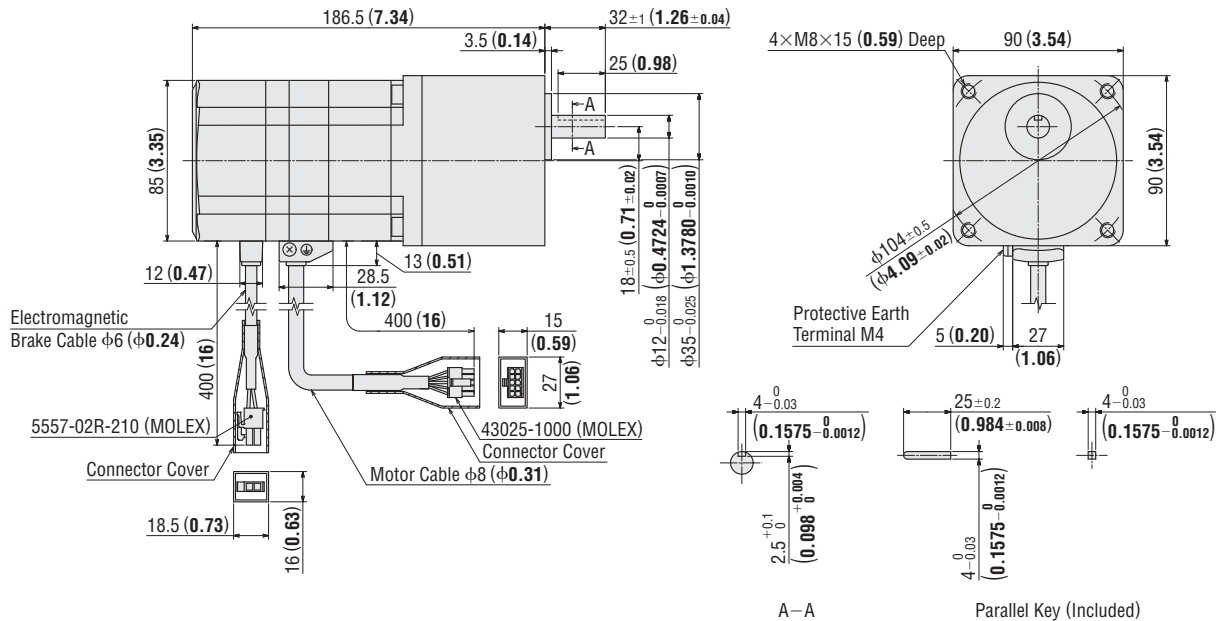
Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR66MKD-T-3	AR66MK-T-3	ARM66MK-T	3.6, 7.2, 10, 20, 30	1.6 (3.5)	B528



Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR98MKD-T-3	AR98MK-T-3	ARM98MK-T	3.6, 7.2, 10, 20, 30	3.7 (8.1)	B529



Overview, Product Series

AC Input Motor & Driver

0.36°/Geared

Q_{STEP}

AR

0.36°/Geared

Q_{STEP}

Absolute

AZ

0.72°/Geared

ARKII

DC Input Motor & Driver

0.36°/Geared

Q_{STEP}

AR

0.36°/Geared

Q_{STEP}

Absolute

AZ

0.72°/0.36°

/Geared

CRK

1.8°/Geared

RBK

1.8°/0.9°

/Geared

CMK

0.72°

All-in-One

PKA

Motor Only

1.8°/0.9°

PKP/PK

Geared

PKP

0.72°/0.36°

PKP

Accessories

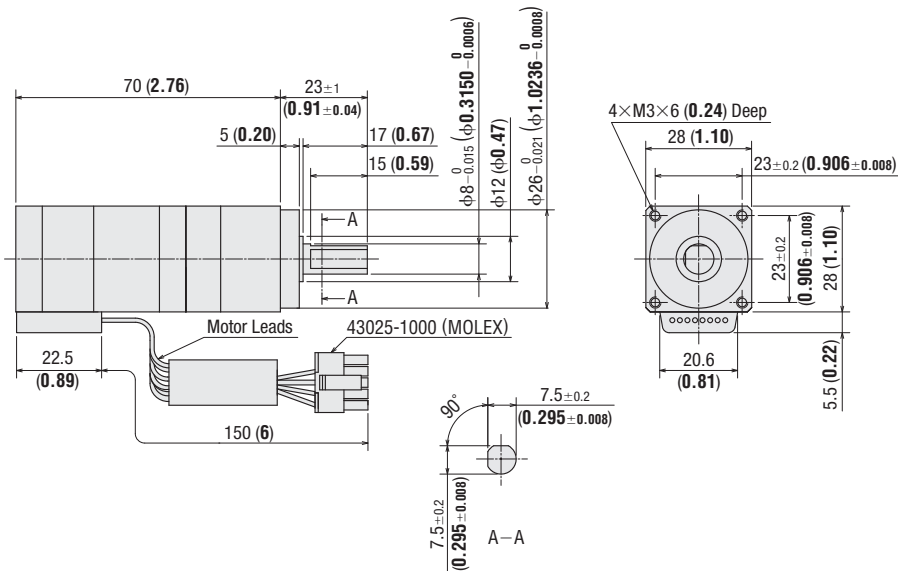
● A number indicating the gear ratio is entered where the box ■ is located within the product name.

◇ **PS** Geared Type

Frame Size 28 mm (1.10 in.)

2D & 3D CAD

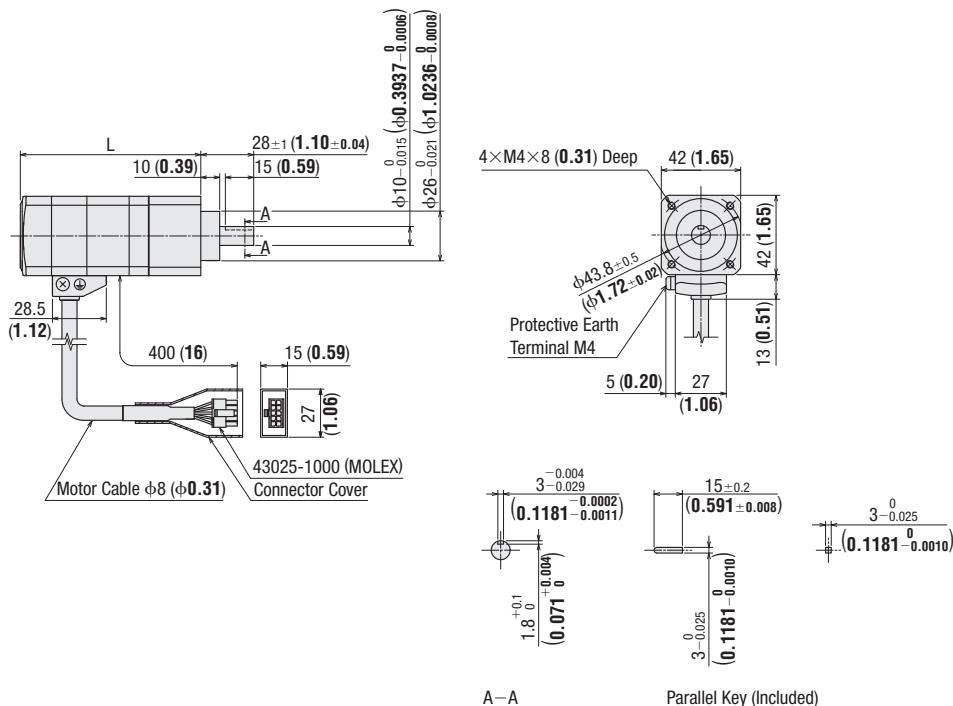
Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR24SAKD-PS ■-3	AR24SAK-PS ■-3	ARM24SAK-PS■	5, 7.2, 10	0.25 (8.8)	B708



Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR46AKD-PS ■-3	AR46AK-PS ■-3	ARM46AK-PS■	5, 7.2, 10	96 (3.78)	0.67 (1.47)	B654
			25, 36, 50	119.5 (4.70)	0.82 (1.80)	B655

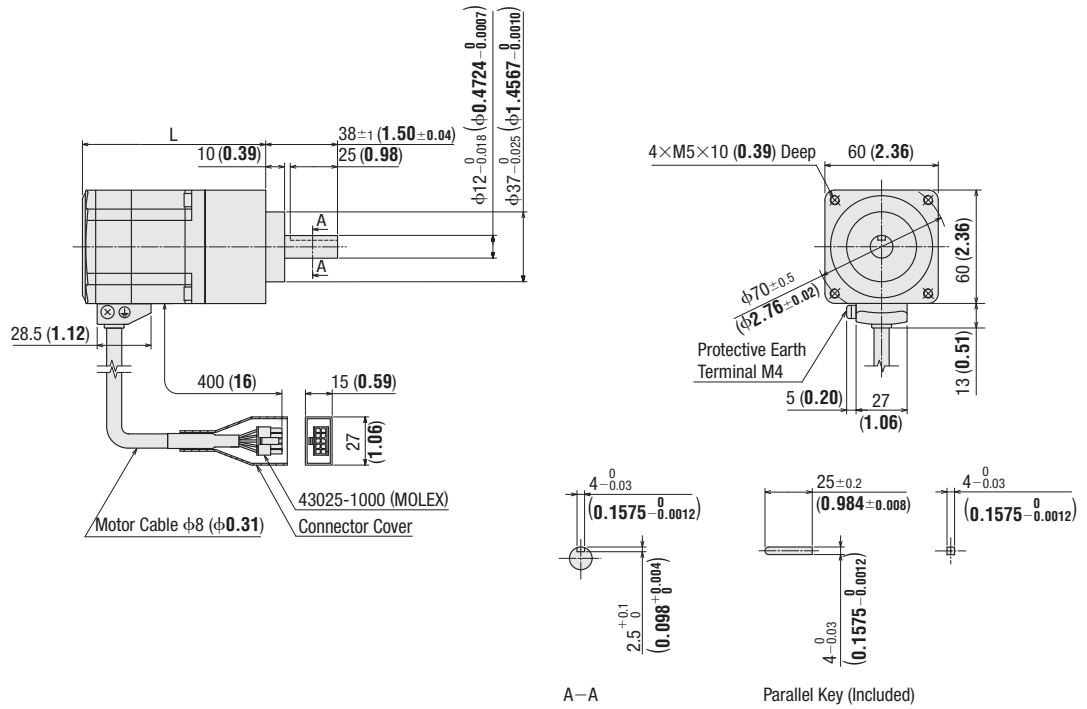


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

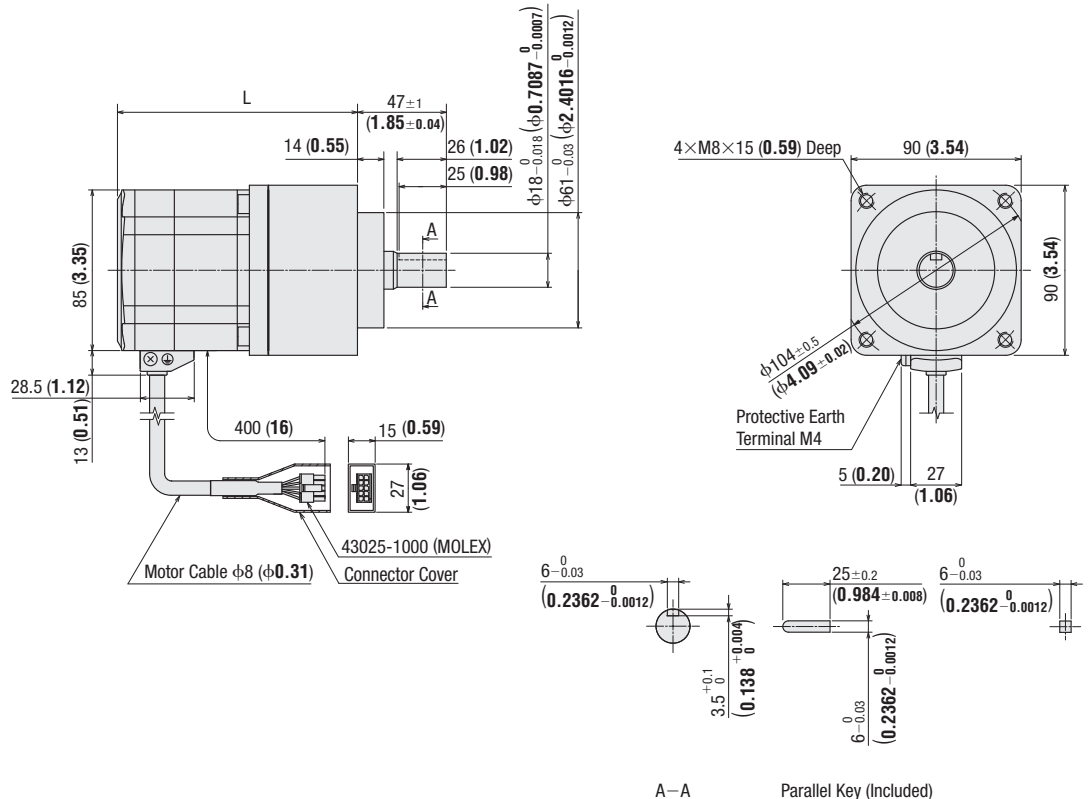
Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR66AKD-PS ■-3	AR66AK-PS ■-3	ARM66AK-PS■	5, 7.2, 10	97 (3.82)	1.3 (2.9)	B658
			25, 36, 50	117 (4.61)	1.6 (3.5)	B659



Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR98AKD-PS ■-3	AR98AK-PS ■-3	ARM98AK-PS■	5, 7.2, 10	127 (5.00)	3.3 (7.3)	B662
			25, 36, 50	154.5 (6.08)	4.1 (9.0)	B663



● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
Q₅STEP AR

0.36°/Geared
Q₅STEP Absolute AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
Q₅STEP AR

0.36°/Geared
Q₅STEP Absolute AZ

0.72°/0.36°/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°/Geared
CMK

0.72°
All-in-One PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

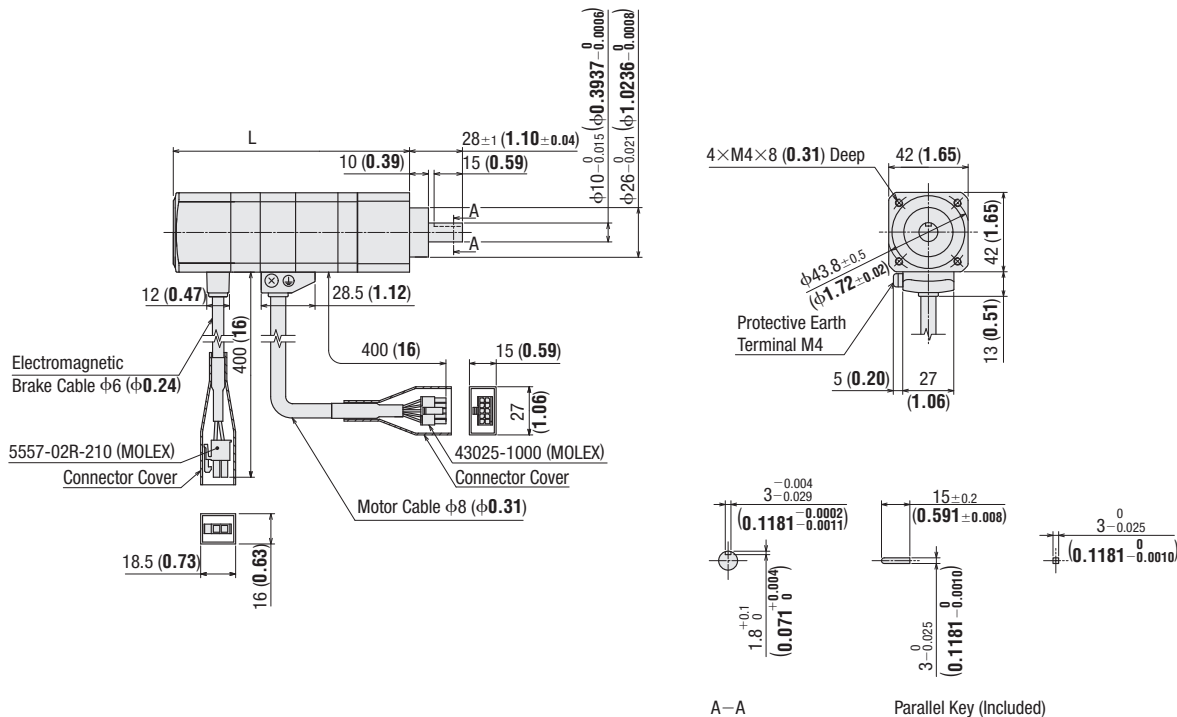
Accessories

◇ **PS** Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

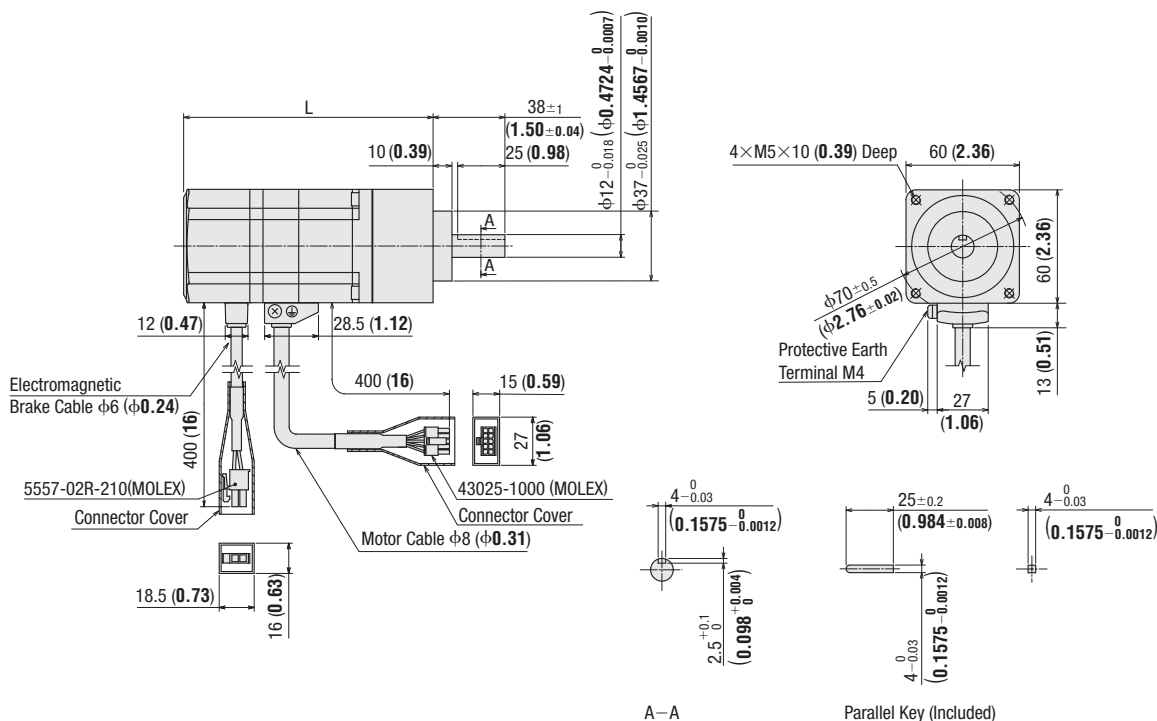
Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR46MKD-PS ■-3	AR46MK-PS ■-3	ARM46MK-PS■	5, 7.2, 10	125.5 (4.94)	0.82 (1.80)	B656
			25, 36, 50	149 (5.87)	0.97 (2.1)	B657



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR66MKD-PS ■-3	AR66MK-PS ■-3	ARM66MK-PS■	5, 7.2, 10	132 (5.20)	1.6 (3.5)	B660
			25, 36, 50	152 (5.98)	1.9 (4.2)	B661

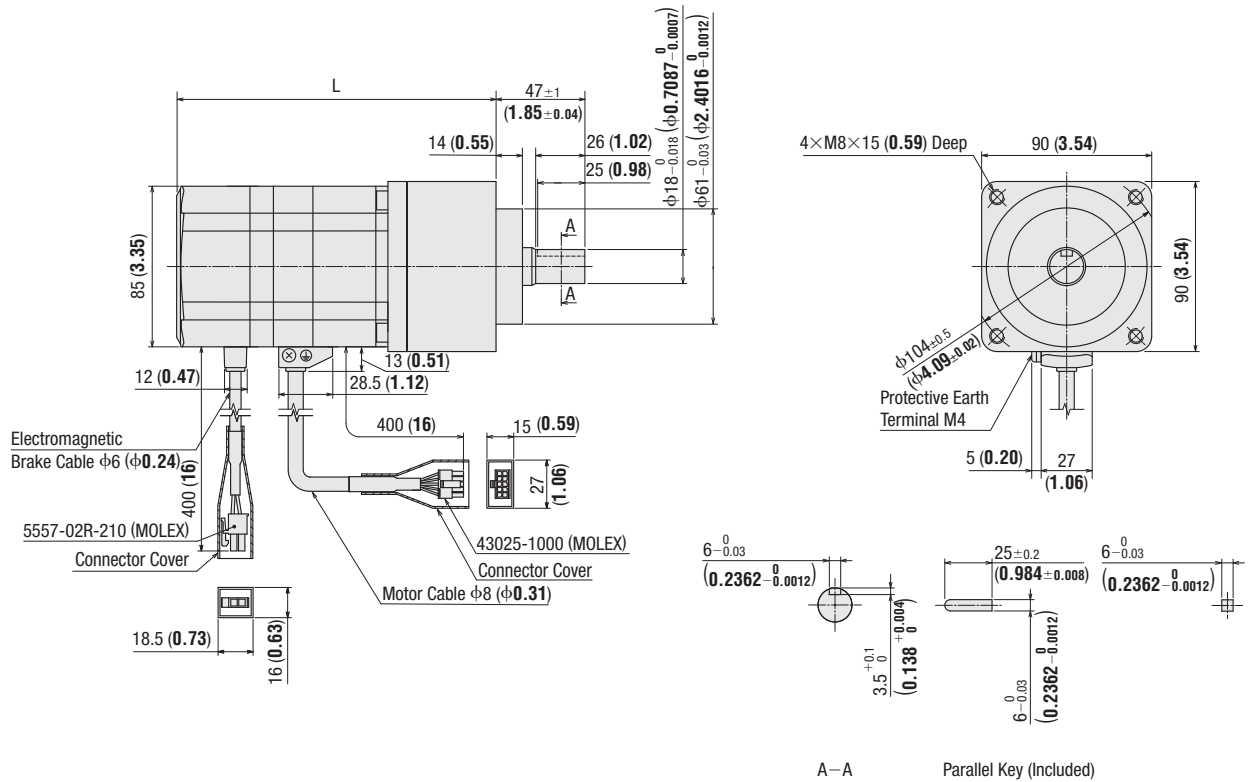


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR98MKD-PS ■-3	AR98MK-PS ■-3	ARM98MK-PS■	5, 7.2, 10	169 (6.65)	3.9 (8.6)	B664
			25, 36, 50	196.5 (7.74)	4.7 (10.3)	B665

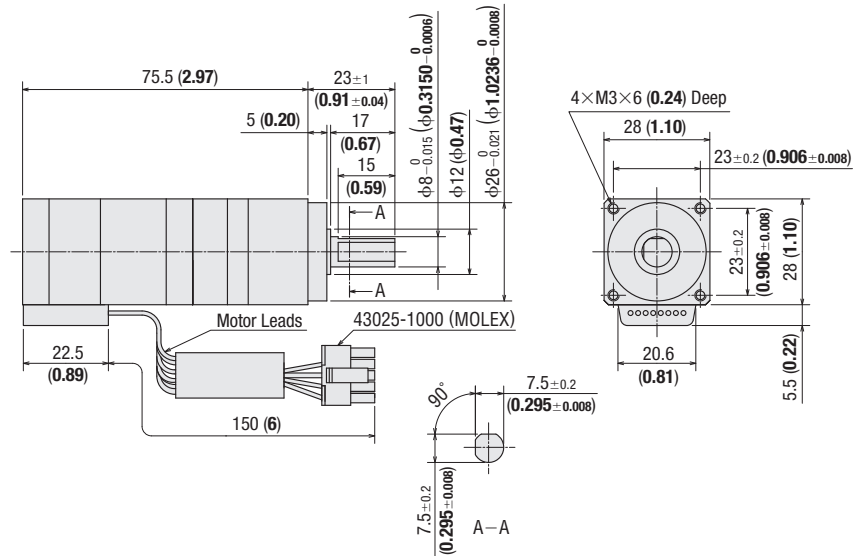


◇ PN Geared Type

Frame Size 28 mm (1.10 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR24SAKD-N ■-3	AR24SAK-N ■-3	ARM24SAK-N■	5, 7.2, 10	0.28 (9.9)	B709



● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared **Q5STEP AR**

0.36°/Geared **Q5STEP Absolute AZ**

0.72°/Geared **RKII**

DC Input Motor & Driver

0.36°/Geared **Q5STEP AR**

0.36°/Geared **Q5STEP Absolute AZ**

0.72°/0.36°/Geared **CRK**

1.8°/Geared **RBK**

1.8°/0.9°/Geared **CMK**

0.72° All-in-One **PKA**

Motor Only

1.8°/0.9° **PKP/PK**

Geared **PKP**

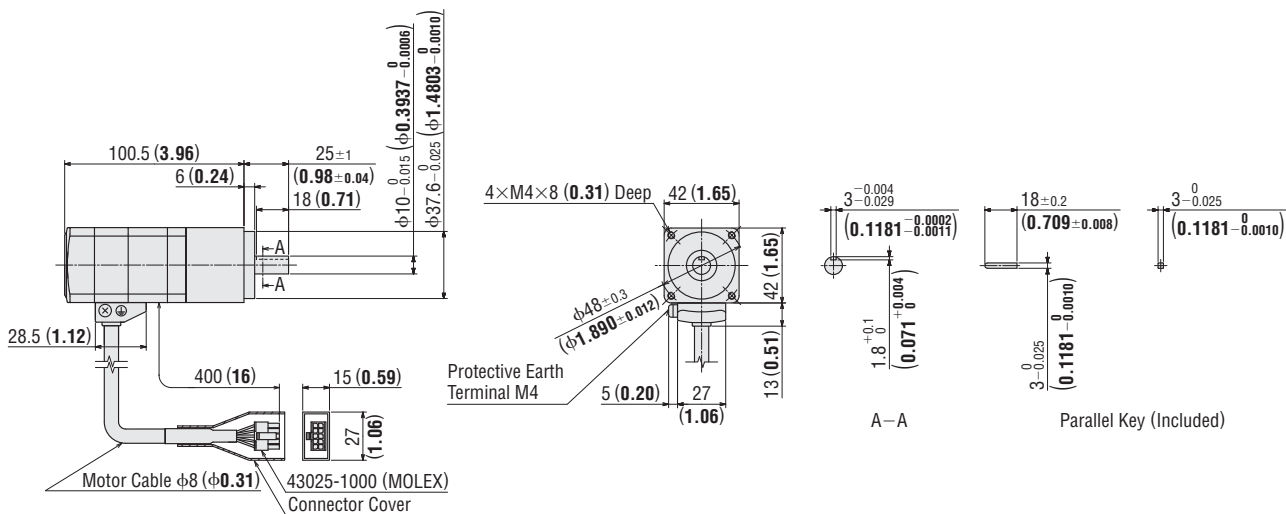
0.72°/0.36° **PKP**

Accessories

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

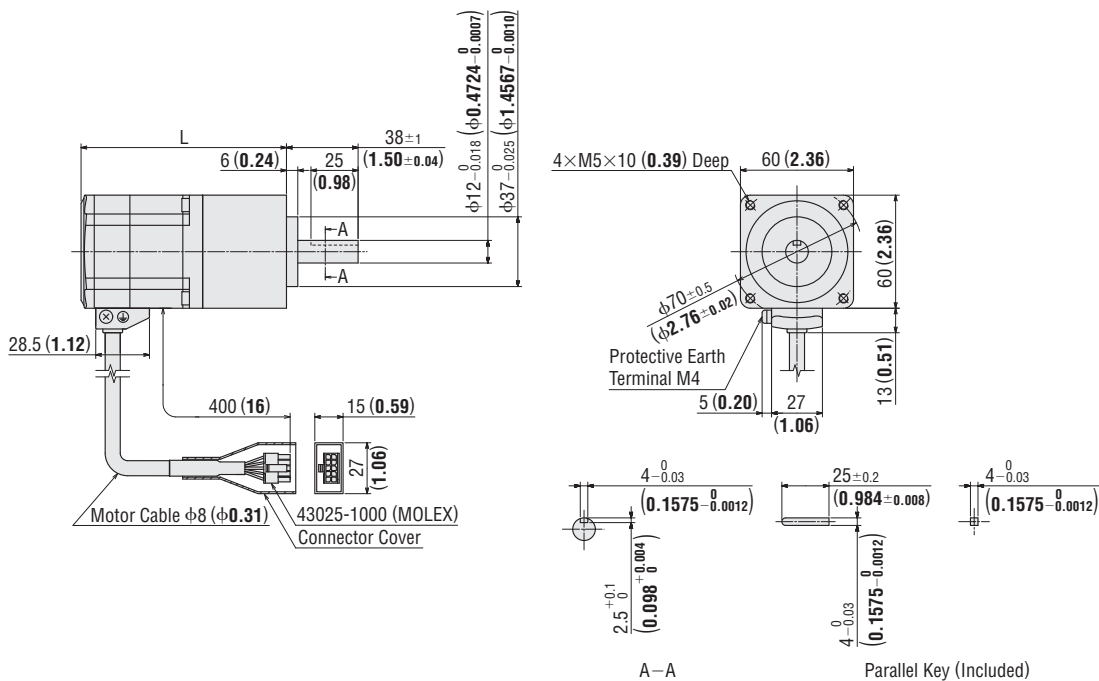
Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46AKD-N-3	AR46AK-N-3	ARM46AK-N	5, 7.2, 10	0.73 (1.61)	B530



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR66AKD-N-3	AR66AK-N-3	ARM66AK-N	5, 7.2, 10	109 (4.29)	1.5 (3.3)	B531
			25, 36, 50	125 (4.92)	1.73 (3.8)	B532

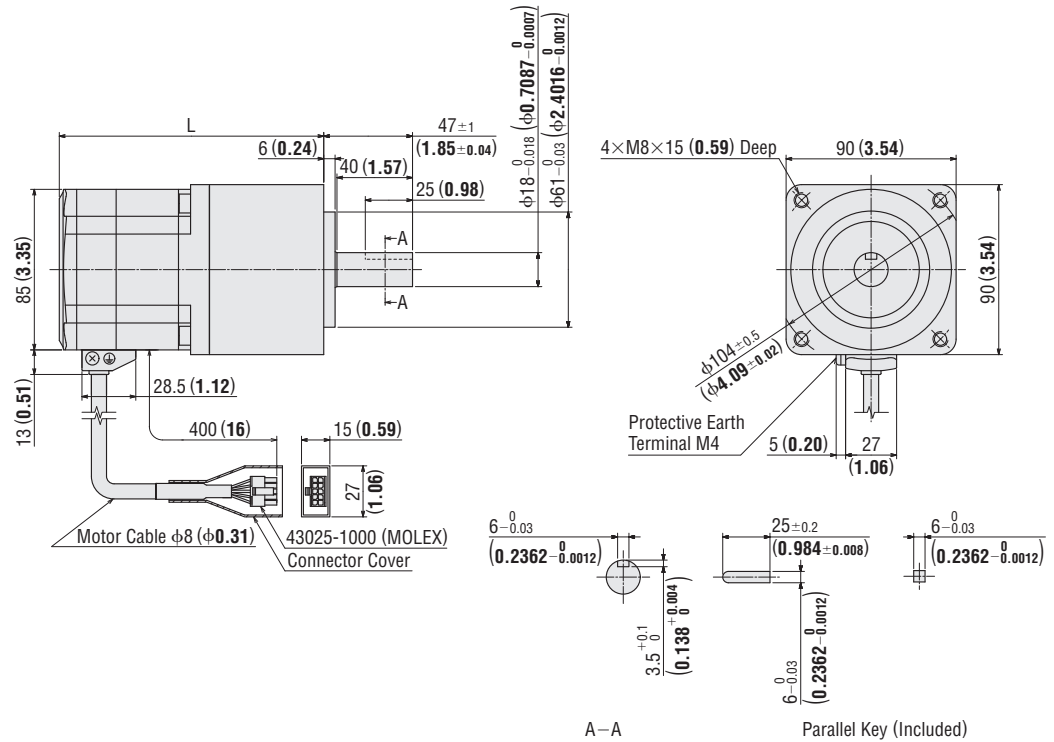


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR98AKD-N ■-3	AR98AK-N ■-3	ARM98AK-N■	5, 7.2, 10	140 (5.51)	3.8 (8.4)	B533
			25, 36, 50	163 (6.42)	4.5 (9.9)	B534

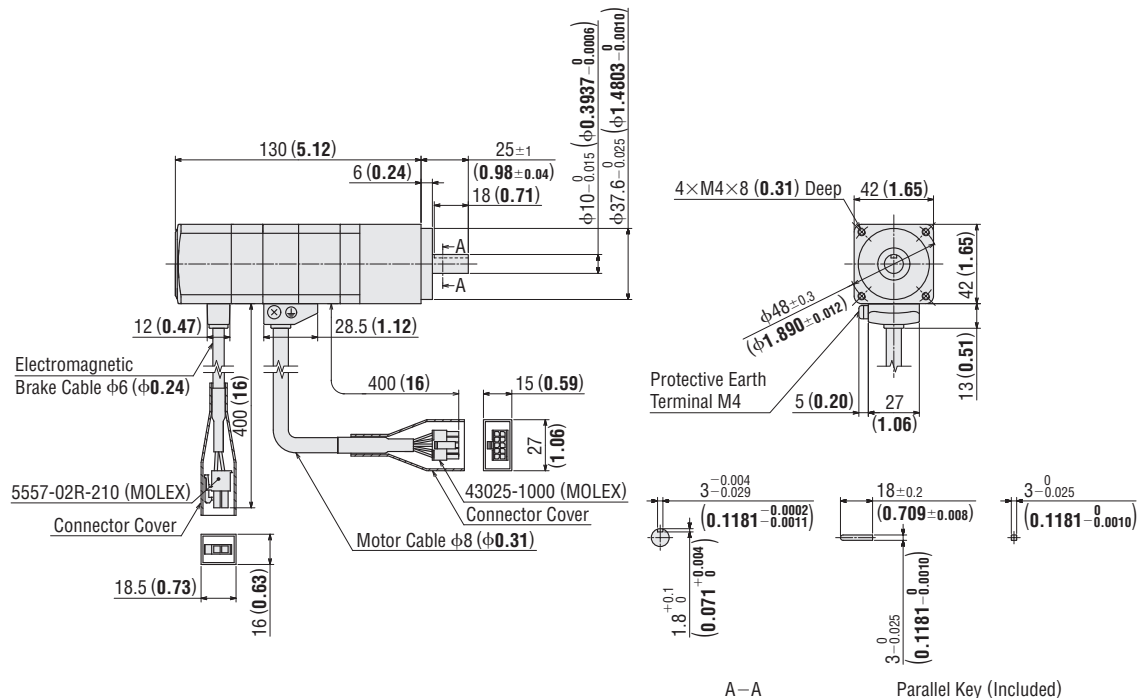


◇ PN Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46MKD-N ■-3	AR46MK-N ■-3	ARM46MK-N■	5, 7.2, 10	0.88 (1.94)	B535



● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared Q₅STEP AR

0.36°/Geared Q₅STEP Absolute AZ

0.72°/Geared RKII

DC Input Motor & Driver

0.36°/Geared Q₅STEP AR

0.36°/Geared Q₅STEP Absolute AZ

0.72°/0.36°/Geared CRK

1.8°/Geared RBK

1.8°/0.9°/Geared CMK

0.72° All-in-One PKA

Motor Only

1.8°/0.9° PKP/PK

Geared PKP

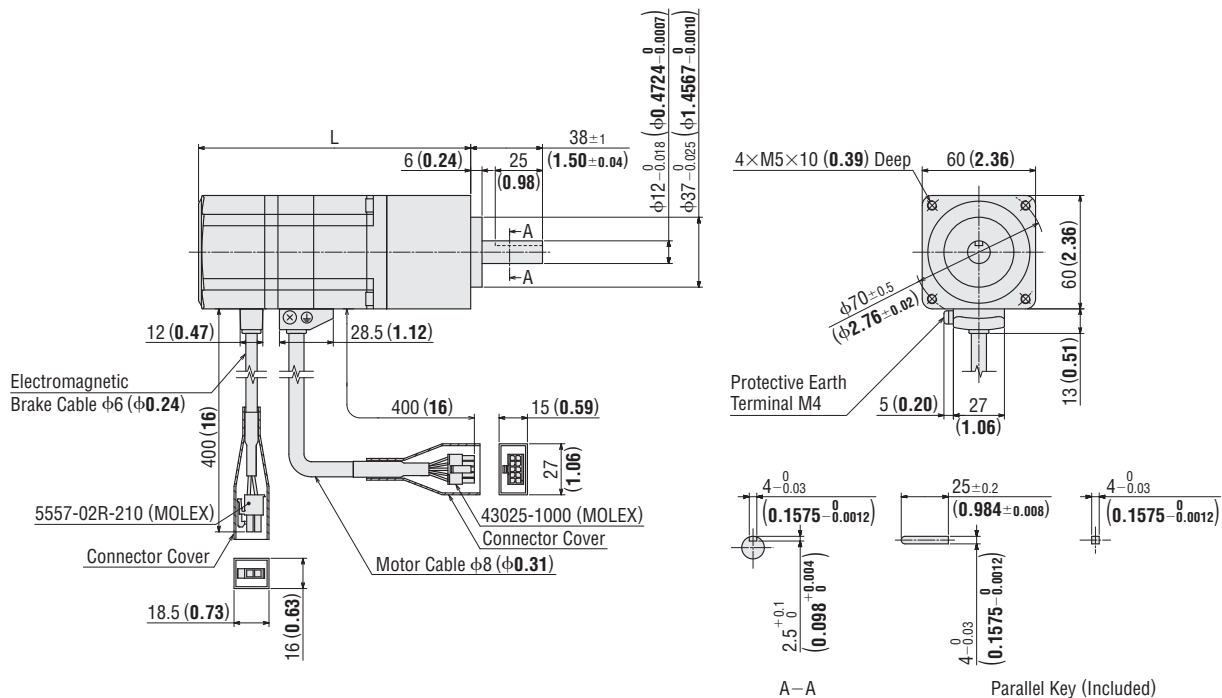
0.72°/0.36° PKP

Accessories

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

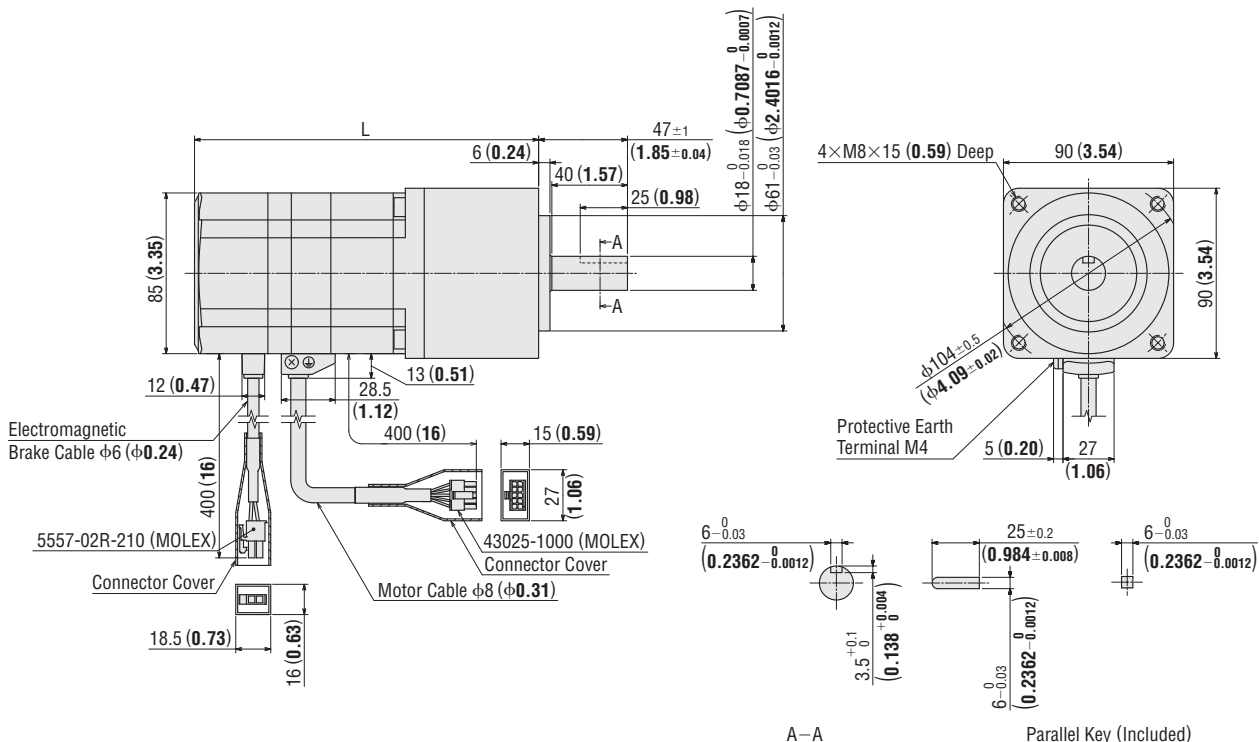
Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR66MKD-N ■-3	AR66MK-N ■-3	ARM66MK-N■	5, 7.2, 10	144 (5.67)	1.8 (4.0)	B536
			25, 36, 50	160 (6.30)	2.0 (4.4)	B537



Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input					
AR98MKD-N ■-3	AR98MK-N ■-3	ARM98MK-N■	5, 7.2, 10	182 (7.17)	4.4 (9.7)	B538
			25, 36, 50	205 (8.07)	5.1 (11.2)	B539



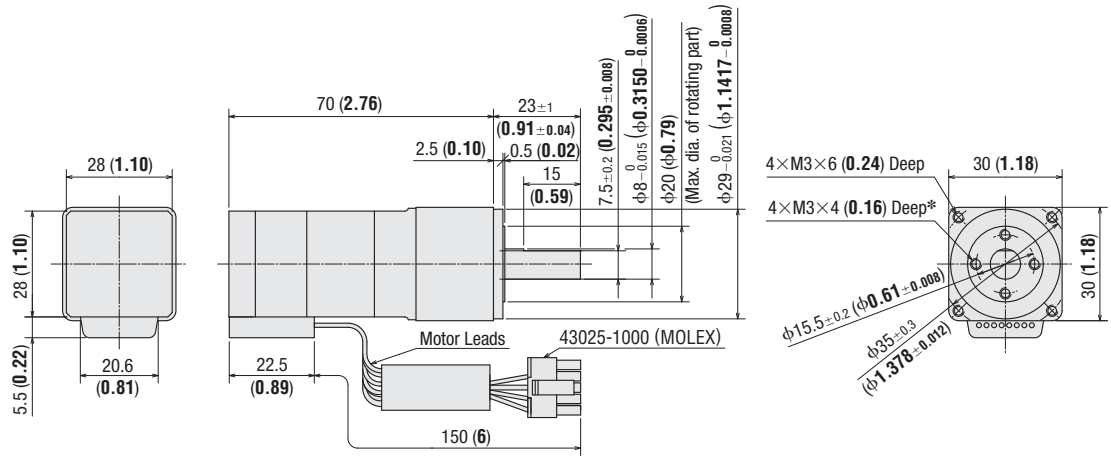
● A number indicating the gear ratio is entered where the box ■ is located within the product name.

◇ Harmonic Gearing Type

Frame Size 30 mm (1.18 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR24SAKD-H ■-3	AR24SAK-H ■-3	ARM24SAK-H■	50, 100	0.24 (8.5)	B710

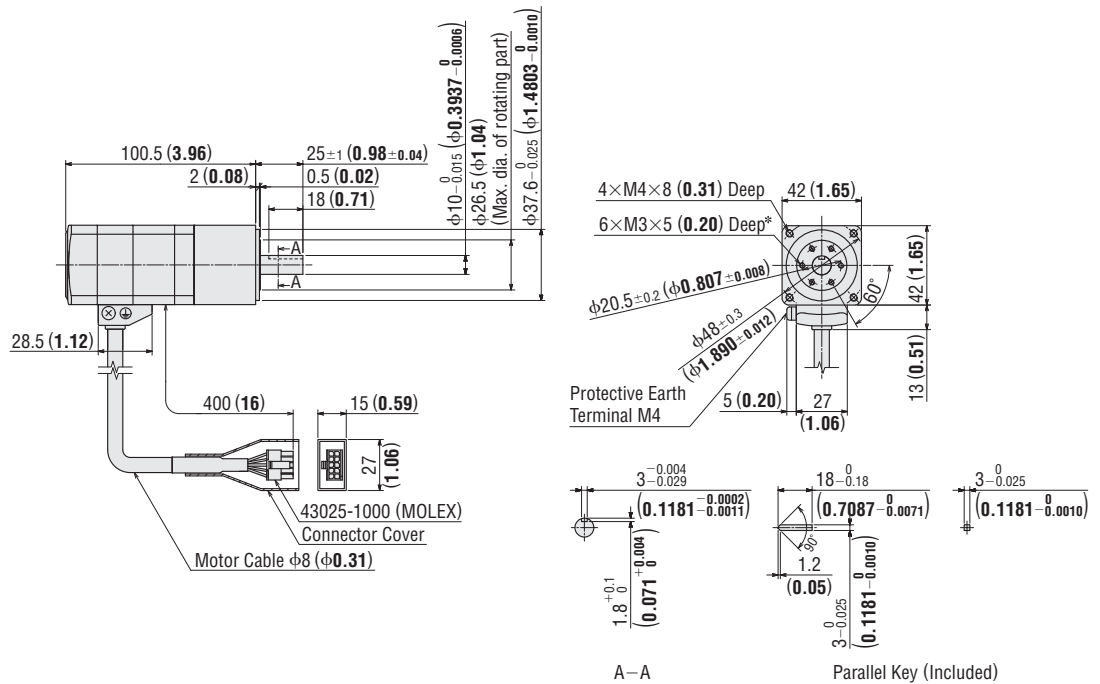


*The position of the output shaft relative to the screw holes on the rotating part is arbitrary.

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46AKD-H ■-3	AR46AK-H ■-3	ARM46AK-H■	50, 100	0.68 (1.5)	B540



*The position of the output shaft relative to the screw holes on the rotating part is arbitrary.

● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Overview, Product Series

AC Input Motor & Driver

0.36°/Geared
Q₅STEP
AR

0.36°/Geared
Q₅STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input Motor & Driver

0.36°/Geared
Q₅STEP
AR

0.36°/Geared
Q₅STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

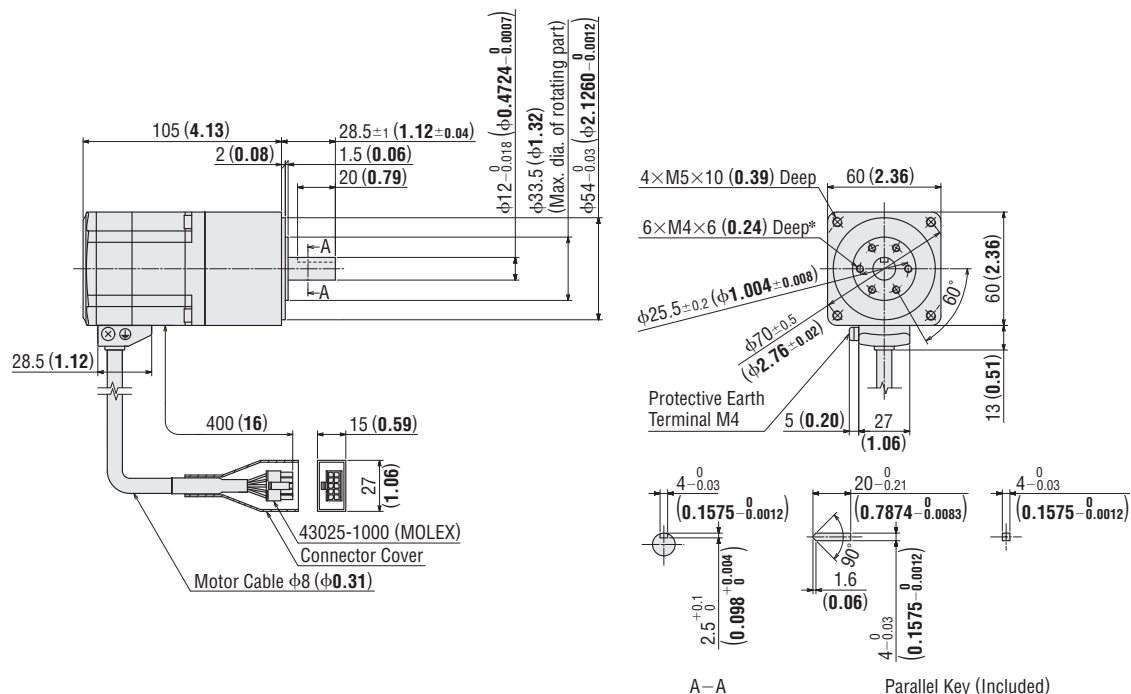
0.72°/0.36°
PKP

Accessories

Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR66AKD-H ■-3	AR66AK-H ■-3	ARM66AK-H■	50, 100	1.41 (3.1)	B541

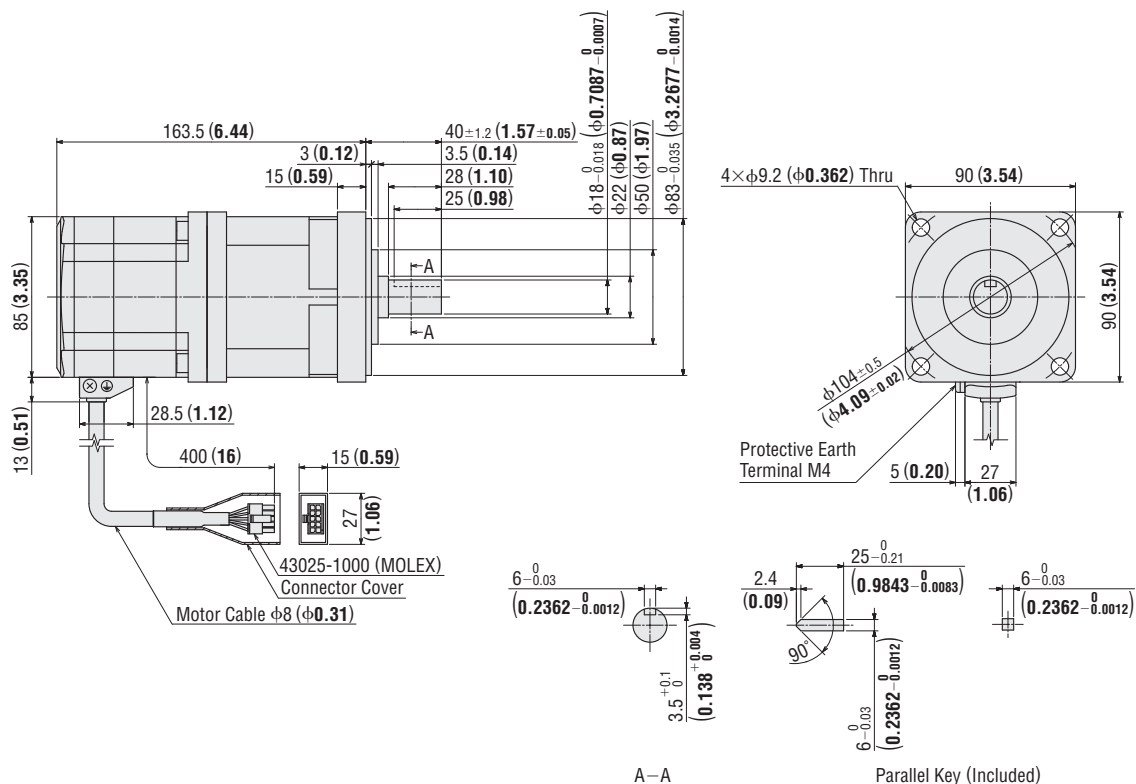


*The position of the output shaft relative to the screw holes on the rotating part is arbitrary.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR98AKD-H ■-3	AR98AK-H ■-3	ARM98AK-H■	50, 100	4.0 (8.8)	B542



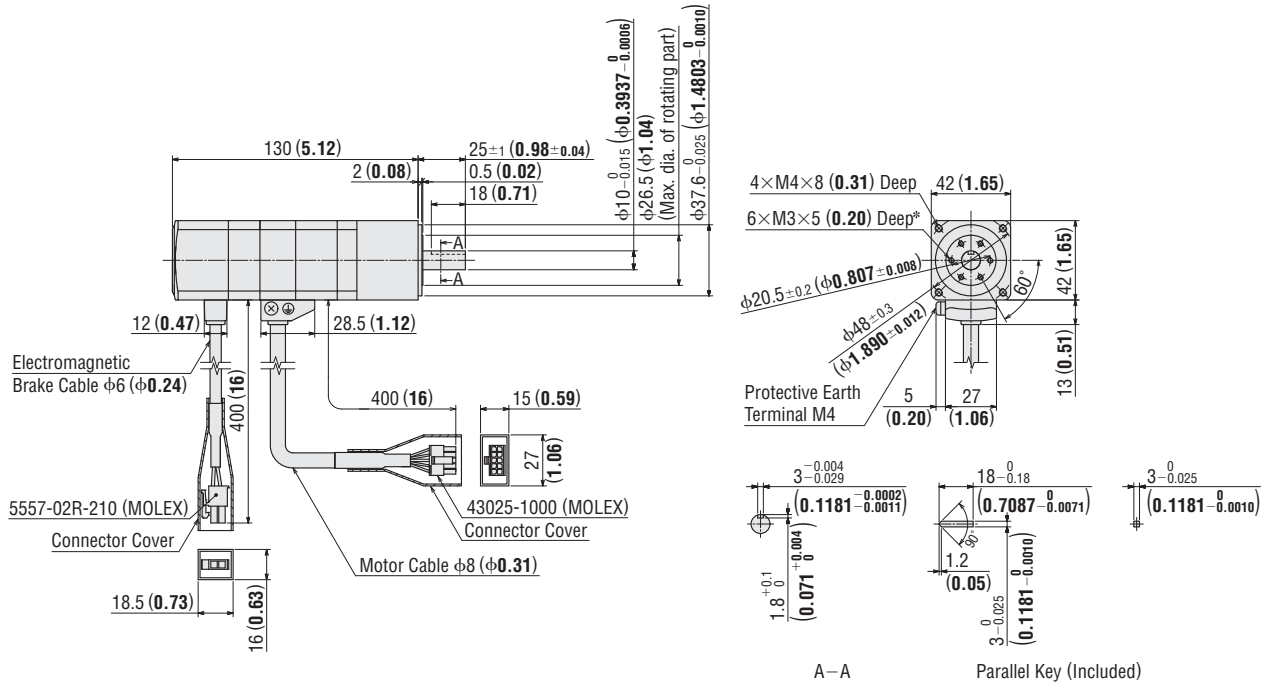
● A number indicating the gear ratio is entered where the box ■ is located within the product name.

◇ Harmonic Geared Type with Electromagnetic Brake

Frame Size 42 mm (1.65 in.)

2D & 3D CAD

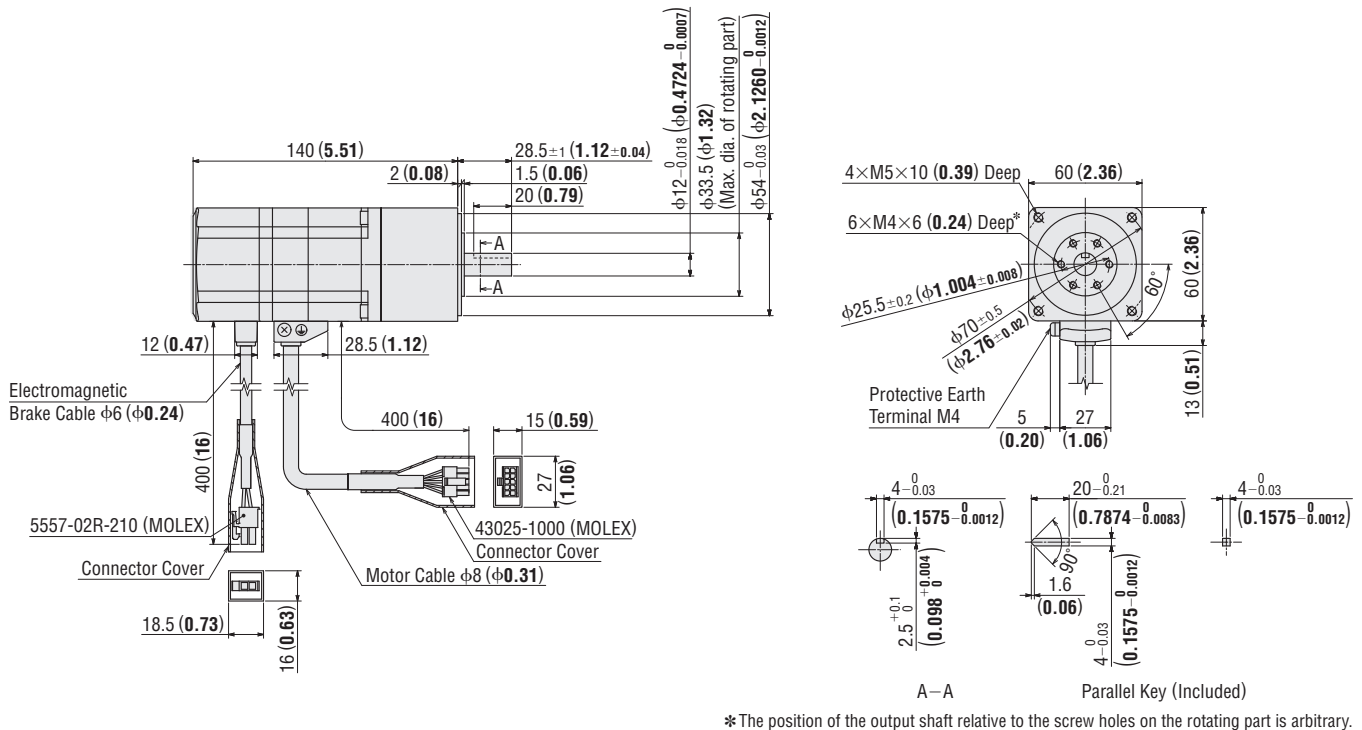
Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR46MKD-H ■-3	AR46MK-H ■-3	ARM46MK-H■	50, 100	0.83 (1.83)	B543



Frame Size 60 mm (2.36 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR66MKD-H ■-3	AR66MK-H ■-3	ARM66MK-H■	50, 100	1.71 (3.8)	B544

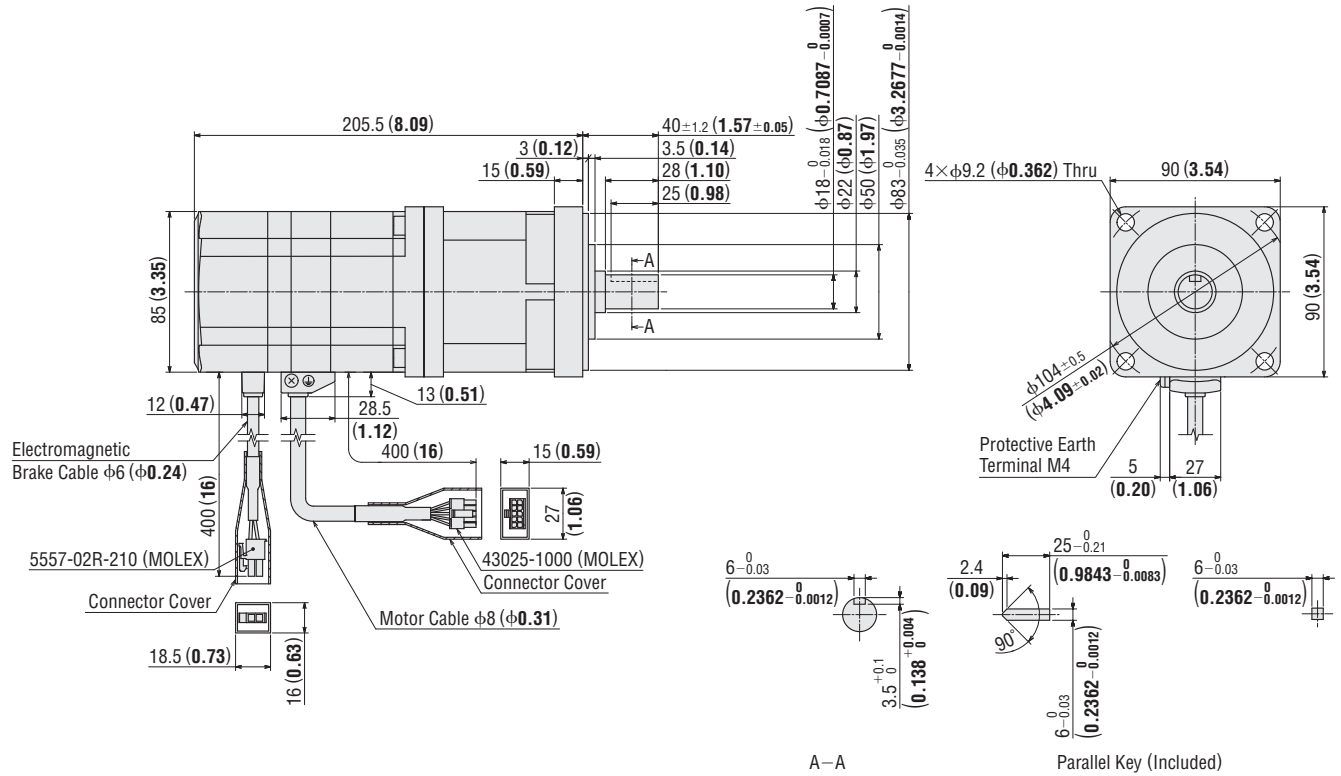


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

Frame Size 90 mm (3.54 in.)

2D & 3D CAD

Product Name		Motor Product Name	Gear Ratio	Mass kg (lb.)	2D CAD
Built-in Controller	Pulse Input				
AR98MKD-H ■-3	AR98MK-H ■-3	ARM98MK-H■	50, 100	4.6 (10.1)	B545

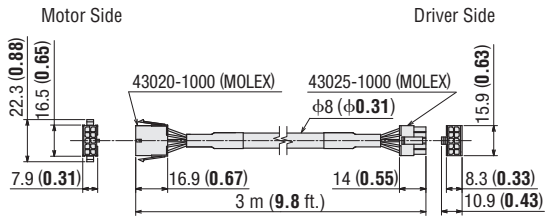


● A number indicating the gear ratio is entered where the box ■ is located within the product name.

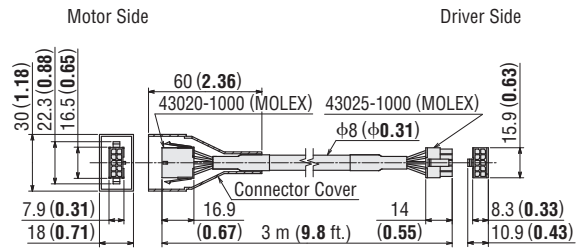
● Cable for Motor (Included), Cable for Electromagnetic Brake (Included)

◇ Cable for Motor

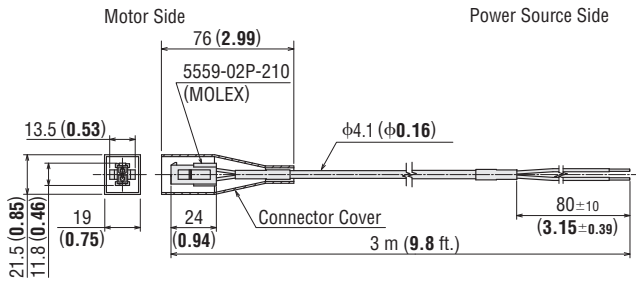
For AR24 and AR26



For AR46, AR66, AR69 and AR98



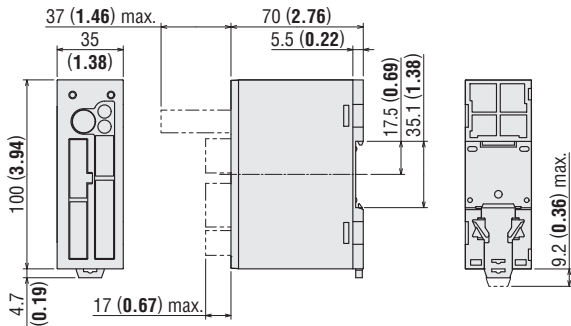
◇ Cable for Electromagnetic Brake (Only for electromagnetic brake product)



● Driver

◇ Built-in Controller Type

Mass: 0.17 kg (0.37 lb.) **2D CAD** B711 **3D CAD**

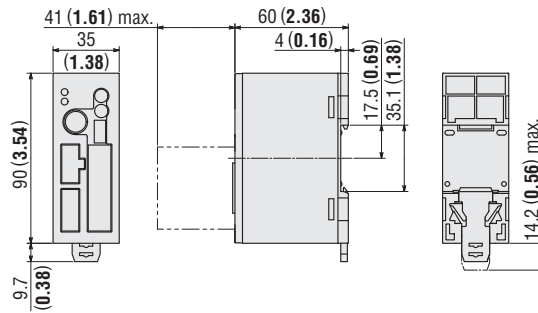


● Included

- Power Supply Input Terminal Connector (CN1)
Connector: MC1,5/5-STF-3,5 (Phoenix Contact)
- Sensor Signal Connector (CN5)
Connector: FK-MC0,5/5-ST-2,5 (Phoenix Contact)
- Input Signal Connector (CN8)
Connector: FK-MC0,5/9-ST-2,5 (Phoenix Contact)
- Output Signal Connector (CN9)
Connector: FK-MC0,5/7-ST-2,5 (Phoenix Contact)

◇ Pulse Input Type

Mass: 0.17 kg (0.37 lb.) **2D CAD** B546 **3D CAD**



● Included

- Control I/O Connector (CN5)
Cover Assembly: 10336-52A0-008 (3M Japan Limited)
- Connector: 10136-3000PE (3M Japan Limited)
- Connector for Power Supply Input/Frame Ground Terminal (CN1)
Connector: MC1,5/3-STF-3,5 (Phoenix Contact)

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
*Q*STEP
AR

0.36°/Geared
*Q*STEP
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

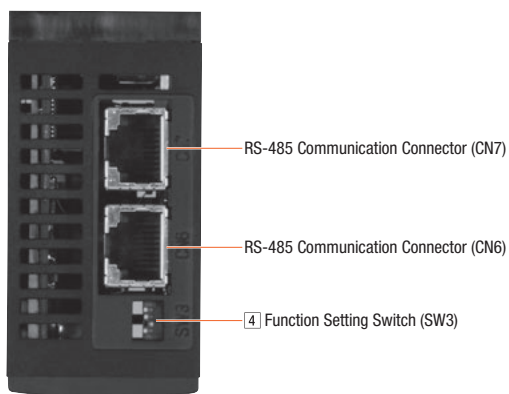
Geared
PKP

0.72°/0.36°
PKP

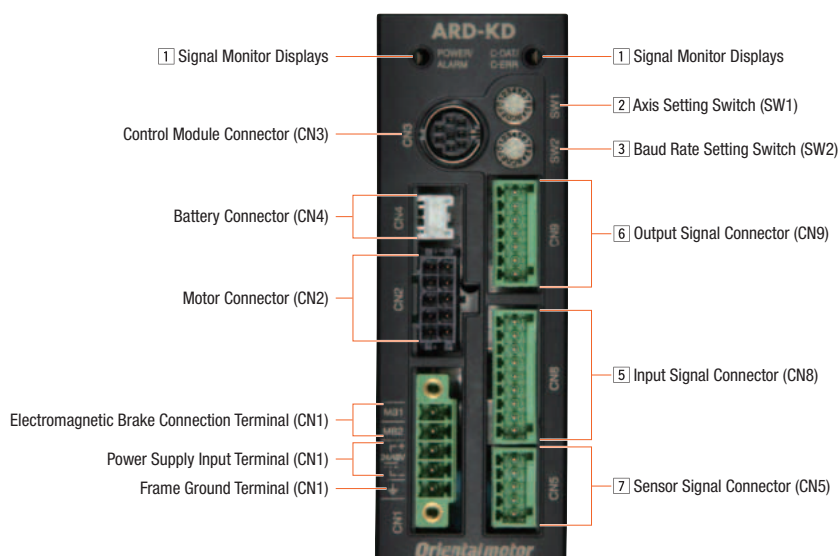
Accessories

Connection and Operation (Built-in controller type)

Names and Functions of Driver Parts



[Driver Top]



1 Signal Monitor Displays

◇ LED Indicators

Indication	Color	Function	Lighting Condition
POWER	Green	Power supply indication	When power is applied
ALARM	Red	Alarm indication	When a protective function is activated (blinking)
C-DAT	Green	Communication indication	When communication data is being sent or received
C-ERR	Red	Communication error indication	When communication data is in error

2 Axis Setting Switch (SW1)

Indication	Function
SW1	Set this when RS-485 communication is used. Set the axis number (factory setting: 0).

3 Baud Rate Setting Switch (SW2)

Indication	Function
SW2	Set this when RS-485 communication is used. Set 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
5~6	Not used
7	625000 (connection with a network converter)
8~F	Not used

4 Function Setting Switch (SW3)

Indication	No.	Function
SW3	1	Set the axis number (factory default setting: OFF) in combination with axis setting switch (SW1).
	2	Set the RS-485 communication protocol (factory setting: OFF).
	3	Not used.
	4	Set the RS-485 communication termination resistance (120 Ω) (factory setting: OFF). OFF: Terminating resistor not used ON: Terminating resistor used

◇ RS-485 Communication Protocol Setting

Connection No.	Connection with a Network Converter	Modbus RTU Mode
2	OFF	ON

5 Input Signal Connector (CN8)

Indication	Pin No.	Signal Name	Description
CN8	1	INO	HOME Execute the return-to-home operation.
	2	IN1	START Execute the positioning operation.
	3	IN2	M0
	4	IN3	M1
	5	IN4	M2
	6	IN5	FREE Stop motor excitation and release the electromagnetic brake.
	7	IN6	STOP Stop the motor.
	8	IN7	ALM-RST Reset the current alarm.
	9	IN-COM1	Common for Input Signals

● You can set functions to assign by specifying parameters. Initial values are shown above. For details, see the user manual.

The following input signals can be assigned to input terminals IN0~IN7.

Input Signals				
0: Not used	8: MS0	18: STOP	36: R4	45: R13
1: FWD	9: MS1	24: ALM-RST	37: R5	46: R14
2: RVS	10: MS2	25: P-PRESET	38: R6	47: R15
3: HOME	11: MS3	26: P-CLR	39: R7	48: M0
4: START	12: MS4	27: HMI	40: R8	49: M1
5: SSTART	13: MS5	32: R0	41: R9	50: M2
6: +JOG	16: FREE	33: R1	42: R10	51: M3
7: -JOG	17: C-ON	34: R2	43: R11	52: M4
		35: R3	44: R12	53: M5

6 Output Signal Connector (CN9)

Indication	Pin No.	Signal Name	Description
CN9	1	OUT0	HOME-P Output when the motor is in the home position.
	2	OUT1	END Output when the positioning operation is completed.
	3	OUT2	AREA1 Output when the motor is within the range of area 1.
	4	OUT3	READY Output when the driver is ready for operation.
	5	OUT4	WNG Outputs the warning status for the driver.
	6	OUT5	ALM Outputs the alarm status for the driver (normally closed).
	7	OUT-COM	Common for Output Signals

● You can set functions to assign by specifying parameters. Initial values are shown above. For details, see the user manual.

The following output signals can be assigned to output terminals OUT0~OUT5.

Output Signals					
0: Not used	9: MS1_R	33: R1	42: R10	51: M3_R	67: READY
1: FWD_R	10: MS2_R	34: R2	43: R11	52: M4_R	68: MOVE
2: RVS_R	11: MS3_R	35: R3	44: R12	53: M5_R	69: END
3: HOME_R	12: MS4_R	36: R4	45: R13	60: +LS_R	70: HOME-P
4: START_R	13: MS5_R	37: R5	46: R14	61: -LS_R	71: TLC
5: SSTART_R	16: FREE_R	38: R6	47: R15	62: HOMES_R	72: TIM
6: +JOG_R	17: C-ON_R	39: R7	48: M0_R	63: SLIT_R	73: AREA1
7: -JOG_R	18: STOP_R	40: R8	49: M1_R	65: ALM	74: AREA2
8: MS0_R	32: R0	41: R9	50: M2_R	66: WNG	75: AREA3
					80: S-BSY

7 Sensor Signal Input (CN5)

Indication	Pin No.	Signal Name	Description
CN5	1	+LS	+Side Limit Sensor Input
	2	-LS	-Side Limit Sensor Input
	3	HOMES	Mechanical Home Sensor Input
	4	SLIT	Slit Sensor Input
	5	IN-COM2	Common for Sensors

Overview,
Product
Series

AC Input
Motor &
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0.36°/Geared
*Q*STEP
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AZ

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RKII

DC Input
Motor &
Driver

0.36°/Geared
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AR

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*Q*STEP
Absolute
AZ

0.72°/0.36°
/Geared
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1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

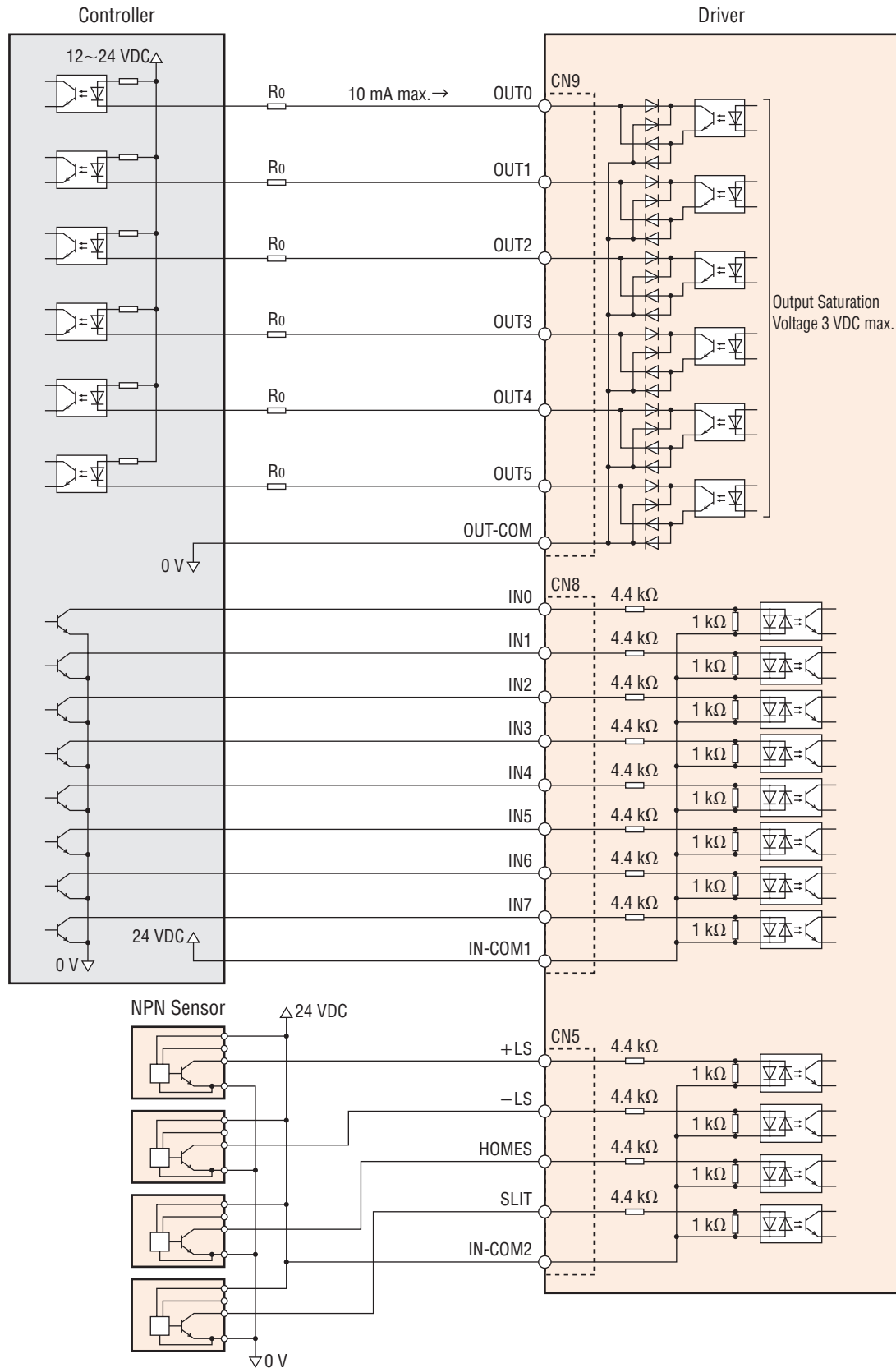
0.72°/0.36°
PKP

Accessories

● Connection Diagram

◇ Connecting to a Host Controller

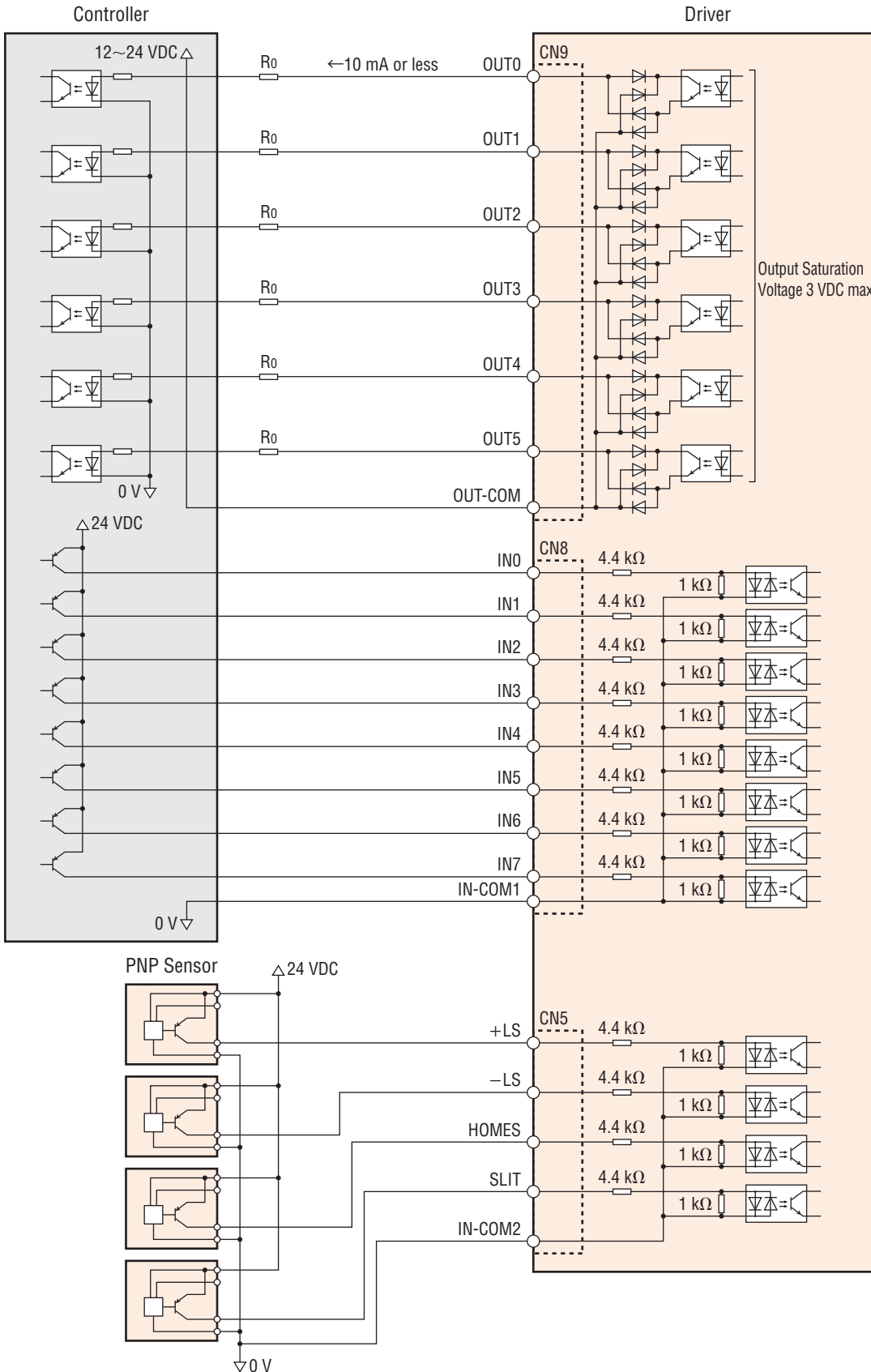
● Connecting to a Current Sink Output Circuit



Note

- Use 24 VDC for the input signals.
- Use output signal at 12~24 VDC 10 mA or less. When the current value exceeds 10 mA, connect an external resistor R_o to reduce the current to 10 mA or less.
- The maximum saturation voltage for the output signals is 3 VDC.
- Provide a distance of 200 mm (7.9 in.) or longer between the signal lines and power lines (power supply lines, 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 with the specific wiring or layout, shield the cable or use ferrite cores.

•Connecting to a Current Source Output Circuit



Note

- Use 24 VDC for the input signals.
- Use output signal at 12~24 VDC 10 mA or less. When the current value exceeds 10 mA, connect an external resistor R_o to reduce the current to 10 mA or less.
- The maximum saturation voltage for the output signals is 3 VDC.
- Provide a distance of 200 mm (7.9 in.) or longer between the signal lines and power lines (power supply lines, 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 with the specific wiring or layout, shield the cable or use ferrite cores.

Overview,
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Series

AC Input
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Driver

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0.36°/Geared
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1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

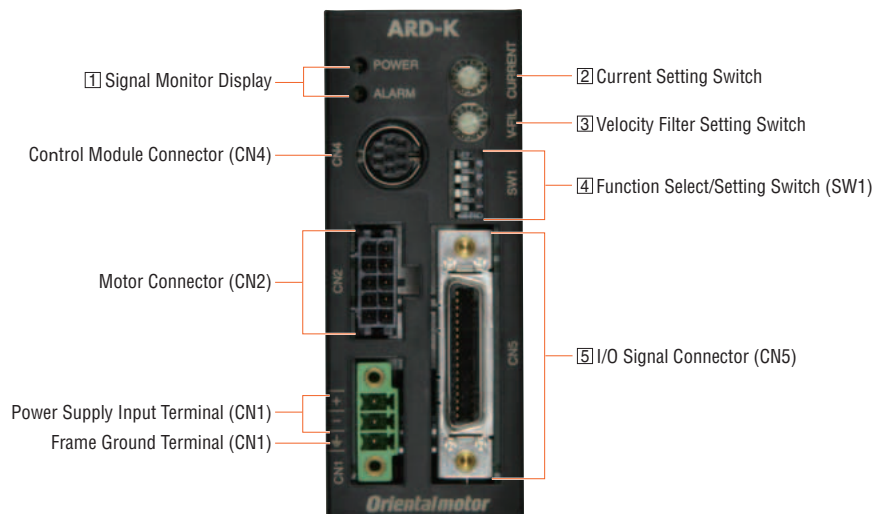
Geared
PKP

0.72°/0.36°
PKP

Accessories

■ Connection and Operation (Pulse input type)

● Names and Functions of Driver Parts



1 Signal Monitor Displays

◇ LED Displays

Indication	Color	Function	When Activated
POWER	Green	Power supply indication	Lights when power is on.
ALARM	Red	Alarm indication	Blinks when protective functions are activated.

◇ Alarms

Blink Count	Function	When Activated
2	Overheat	The temperature inside the driver rises above 85°C (185°F).
	Overload	When the amount of time during which the load torque exceeded the maximum torque exceeds the overload detection time. (Default value: 5 seconds)
	Overspeed	The motor output shaft speed exceeds 4500 r/min.
	Command pulse error	The command pulse value becomes abnormal.
3	Overvoltage	The primary voltage of the driver's inverter exceeds the upper limit.
	Undervoltage	The primary voltage of the driver's inverter drops below the lower limit.
4	Overflow rotation during current on	The position deviation exceeds the overflow revolutions. (Default value: 3 revolutions)
	Overflow rotation during current off	The current is turned on even though the position deviation when the current is turned off was equal to or greater than the permissible value. (Default value: 100 revolutions or more)
7	Abnormal operation data	Return to electrical home operation is performed while an operation data error warning is present.
	Electronic gear setting error	The resolution set by the electronic gear is outside the specified range.
	Sensor error during operation	A sensor error occurs while the motor is rotating.
8	Initial sensor error	The power source is turned on when the motor cable is not connected to the driver.
	Initial rotor rotation error	The main power is turned on while the motor is rotating.
	Motor combination error	A motor not supported by the driver is connected.
9	EEPROM error	A motor control parameter is damaged.

2 Current Setting Switch

Indication	Switch Name	Function
CURRENT	Current setting switch	This switch adjusts the operating current. It is used to limit the torque and temperature rise. A desired current can be set as a percentage (%) of the rated output current. The factory setting is "F".

3 Velocity Filter Setting Switch

Indication	Switch Name	Function
V-FIL	Velocity filter setting switch	<p>This switch adjusts the motor response. Adjust the switch if you want to suppress motor vibration or cause the motor to start/stop smoothly. "0" and "F" correspond to the minimum and maximum velocity filter settings, respectively. The factory setting is "1."</p> <p>The difference in characteristics made by the velocity filter</p>

4] Function Select/Setting Switches

Indication	Switch Name	Function
4	Resolution select switches "D0/D1" "CS0/CS1"	These switches are used to set the resolution per rotation of the motor output shaft. "4: OFF" "3: OFF" → 1000 pulse (0.36°/step) [Factory setting] "4: OFF" "3: ON" → 10000 pulse (0.036°/step)
3		"4: ON" "3: OFF" → 500 pulse (0.72°/step) "4: ON" "3: ON" → 5000 pulse (0.072°/step)
2	Control mode select switches "NORM/CCM"	This switch toggles the driver between the normal mode and current control mode. In the current control mode, noise and vibration can be reduced although the motor synchronicity may reduce. "OFF": Normal mode [Factory setting] "ON": Current control mode
1	Pulse input mode switch "2P/1P"	The settings of this switch are compatible with the following two types of pulse input modes: "OFF": 2-pulse input mode "ON": 1-pulse input mode [Factory setting]

5] I/O Signal Connector (CN5, 36 pins)

Indication	Input/Output	Pin No.	Signal		Signal Name	
			Positioning Operation	Push-Motion Operation*1	Positioning Operation	Push-Motion Operation*1
CN5	Output	1	-		-	
		2	GND		Ground connection	
		3	ASG+		A-phase pulse output (line driver)	
		4	ASG-		A-phase pulse output (line driver)	
		5	BSG+		B-phase pulse output (line driver)	
		6	BSG-		B-phase pulse output (line driver)	
		7	TIM1+		Timing output (line driver)	
		8	TIM1-		Timing output (line driver)	
		9	ALM+		Alarm output	
		10	ALM-		Alarm output	
		11	WNG+		Warning output	
		12	WNG-		Warning output	
		13	END+		Positioning complete output	
		14	END-		Positioning complete output	
		15	READY+/ALO+*1		Operation ready complete output/Alarm code output 0*1	
		16	READY-/ALO-*1		Operation ready complete output/Alarm code output 0*1	
		17	TLC+/AL1+*1		Torque limit output /Alarm code output 1*1	
		18	TLC-/AL1-*1		Torque limit output /Alarm code output 1*1	
		19	TIM2+/AL2+*1		Timing output (open-collector)/Alarm code output 2*1	
		20	TIM2-/AL2-*1		Timing output (open-collector)/Alarm code output 2*1	
		21	GND		Ground connection	
	22	IN-COM		Input signal common		
	23	C-ON*2		Current on input*2		
	24	CLR/ALM-RST		Deviation counter clear input/Alarm reset input		
	25	CCM		Current control mode ON input		
	26	CS	T-MODE*1	Resolution select input	Push-motion operation ON*1	
	27	-	M0*1	-	Push-current setting select input*1	
	28	RETURN	M1*1	Return to electrical home operation	Push-current setting select input*1	
	29	P-RESET	M2*1	Position reset input	Push-current setting select input*1	
	30	FREE		Excitation OFF		
	31	PLS+/CW+		Pulse input/CW pulse input (+5 VDC/line driver)		
	32	PLS-/CW-		Pulse input/CW pulse input (+5 VDC/line driver)		
	33	PLS+24/CW+24V		Pulse input/CW pulse input (+24VDC)		
	34	DIR+24/CCW+24V		Direction input/CCW pulse input (+24VDC)		
	35	DIR+/CCW+		Direction input/CCW pulse input (+5 VDC/line driver)		
	36	DIR-/CCW-		Direction input/CCW pulse input (+5 VDC/line driver)		

*1 The signal will become effective if the applicable setting has been changed using the accessory control module **OPX-2A** (sold separately) or the data setting software **MEXE02**.

*2 The factory setting of the C-ON input is normally open. Be sure to turn the C-ON input ON when operating the motor.

Set the C-ON input to normally closed with a control module **OPX-2A** (sold separately) or a data setting software **MEXE02** when the C-ON input is not used.

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
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AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

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All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

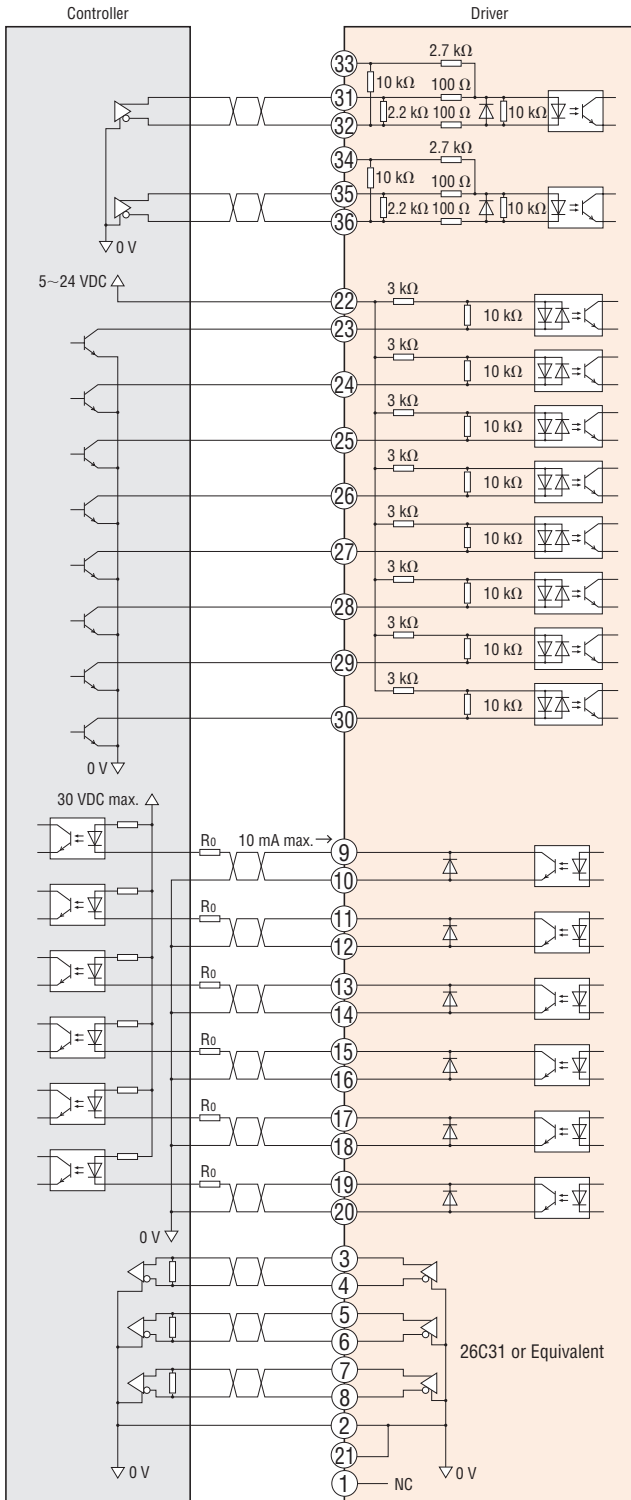
Accessories

● Connection Diagram

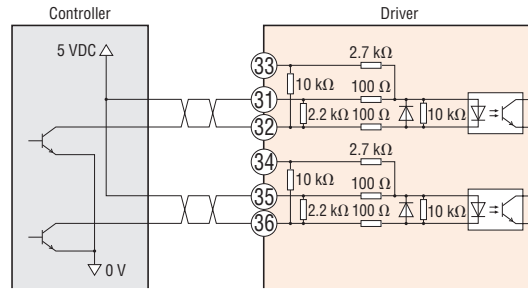
◇ Connecting to a Host Controller

● Connecting to a Current Sink Output Circuit

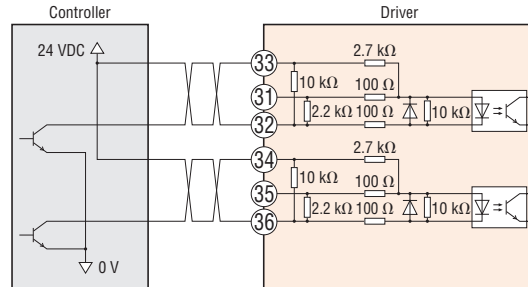
When pulse input is of line driver type



When the pulse input is open collector (input voltage 5 VDC)



When the pulse input is open collector (input voltage 24 VDC)

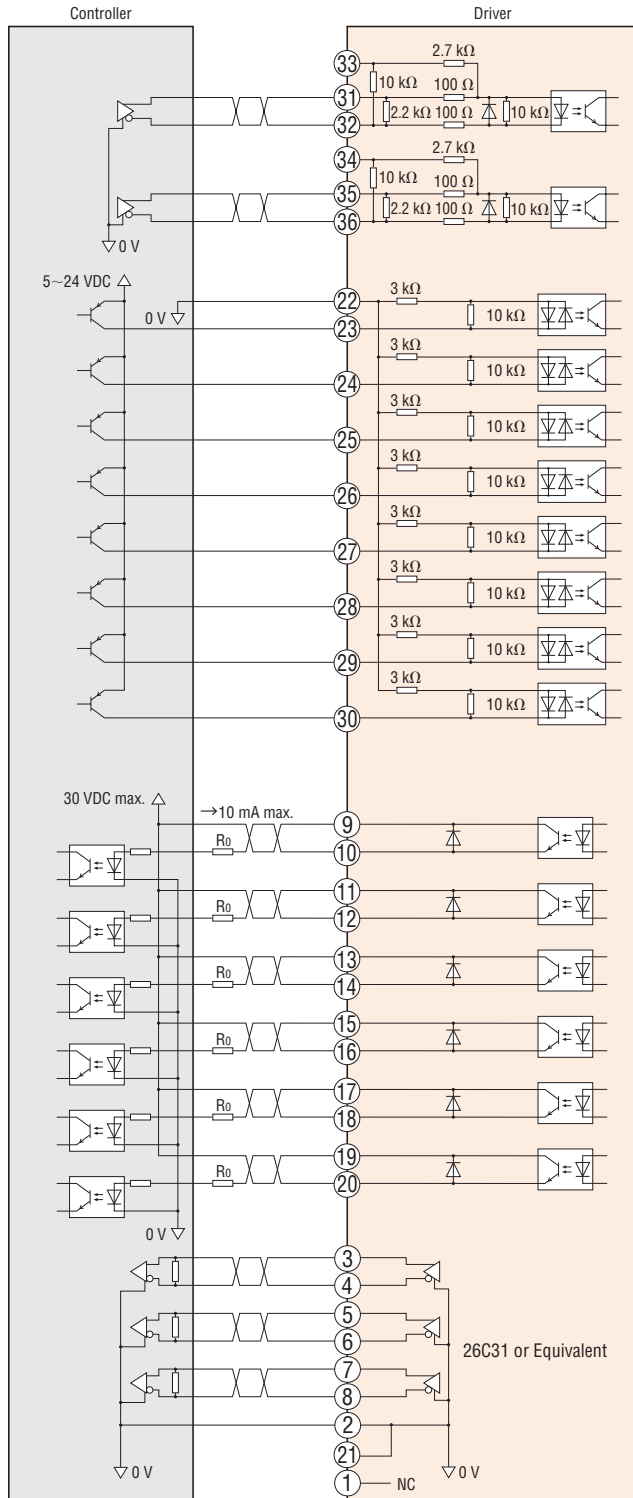


Note

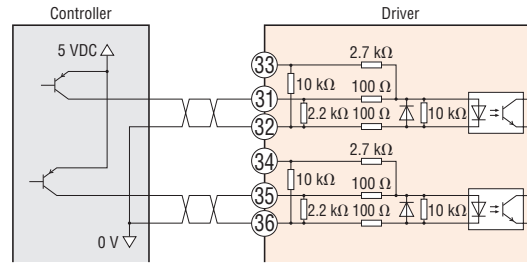
- Use output signals at 30 VDC or less. If the current exceeds 10 mA, connect an external resistor R_o .
- Connect a terminal resistor of 100 Ω or more between the input of the line receiver terminals.
- Use a multi-core, twisted-pair shielded wire of AWG28 to 26 for the control input/output signal line (CN5), and keep wiring as short as possible [within 2 m (6.6 ft.)].
- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.
- Provide a minimum distance of 200 mm (7.9 in.) between the control I/O signal lines and power lines (AC lines, motor lines and other large-current circuits). Do not run the control I/O signal lines in the same duct as power lines or bundle them with power lines.

•Connecting to a Current Source Output Circuit

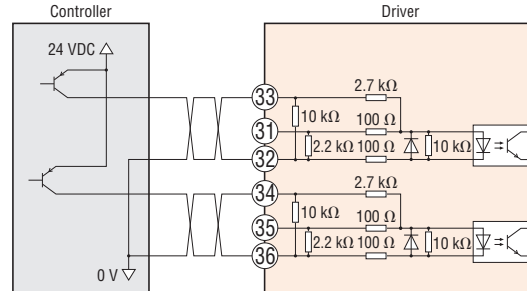
When pulse input is of line driver type



When the pulse input is open collector (input voltage 5 VDC)



When the pulse input is open collector (input voltage 24 VDC)



Note

- Use output signals at 30 VDC or less. If the current exceeds 10 mA, connect an external resistor R_o .
- Connect a terminal resistor of 100 Ω or more between the input of the line receiver terminals.
- Use a multi-core, twisted-pair shielded wire of AWG28 to 26 for the control input/output signal line (CN5), and keep wiring as short as possible [within 2 m (6.6 ft.)].
- Note that as the length of the pulse signal line increases, the maximum transmission frequency decreases.
- Provide a minimum distance of 200 mm (7.9 in.) between the control I/O signal lines and power lines (AC lines, motor lines and other large-current circuits). Do not run the control I/O signal lines in the same duct as power lines or bundle them with power lines.

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
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DC Input
Motor &
Driver

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0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories

List of Motor and Driver Combinations

The product names for motor and driver combinations are shown below.

Type	Built-in Controller Type			Pulse Input Type		
	Product Name	Motor Product Name	Driver Product Name	Product Name	Motor Product Name	Driver Product Name
Standard Type	AR24S □ KD-3 *1	ARM24S□K*1	ARD-KD	AR24S □ K-3 *1	ARM24S□K*1	ARD-K
	AR26S □ KD-3 *1	ARM26S□K*1		AR26S □ K-3 *1	ARM26S□K*1	
	AR46 □ KD-3 *2	ARM46□K*2		AR46 □ K-3 *2	ARM46□K*2	
	AR66 □ KD-3 *2	ARM66□K*2		AR66 □ K-3 *2	ARM66□K*2	
	AR69 □ KD-3 *2	ARM69□K*2		AR69 □ K-3 *2	ARM69□K*2	
	AR98 □ KD-3 *2	ARM98□K*2		AR98 □ K-3 *2	ARM98□K*2	
TH Geared Type	AR24SAKD-T □-3	ARM24SAK-T□		AR24SAK-T □-3	ARM24SAK-T□	
	AR46 □ KD-T □-3	ARM46□K-T□		AR46 □ K-T □-3	ARM46□K-T□	
	AR66 □ KD-T □-3	ARM66□K-T□		AR66 □ K-T □-3	ARM66□K-T□	
	AR98 □ KD-T □-3	ARM98□K-T□		AR98 □ K-T □-3	ARM98□K-T□	
PS Geared Type	AR24SAKD-PS □-3	ARM24SAK-PS□		AR24SAK-PS □-3	ARM24SAK-PS□	
	AR46 □ KD-PS □-3	ARM46□K-PS□		AR46 □ K-PS □-3	ARM46□K-PS□	
	AR66 □ KD-PS □-3	ARM66□K-PS□		AR66 □ K-PS □-3	ARM66□K-PS□	
	AR98 □ KD-PS □-3	ARM98□K-PS□		AR98 □ K-PS □-3	ARM98□K-PS□	
PN Geared Type	AR24SAKD-N □-3	ARM24SAK-N□		AR24SAK-N □-3	ARM24SAK-N□	
	AR46 □ KD-N □-3	ARM46□K-N□	AR46 □ K-N □-3	ARM46□K-N□		
	AR66 □ KD-N □-3	ARM66□K-N□	AR66 □ K-N □-3	ARM66□K-N□		
	AR98 □ KD-N □-3	ARM98□K-N□	AR98 □ K-N □-3	ARM98□K-N□		
Harmonic Geared Type	AR24SAKD-H □-3	ARM24SAK-H□	AR24SAK-H □-3	ARM24SAK-H□		
	AR46 □ KD-H □-3	ARM46□K-H□	AR46 □ K-H □-3	ARM46□K-H□		
	AR66 □ KD-H □-3	ARM66□K-H□	AR66 □ K-H □-3	ARM66□K-H□		
	AR98 □ KD-H □-3	ARM98□K-H□	AR98 □ K-H □-3	ARM98□K-H□		

● Either **A** (single shaft) or **M** (with electromagnetic brake) indicating the configuration is entered where the box □ is located within the product name.

A number indicating the gear ratio is entered where the box ■ is located within the product name.

*1 Either **A** (single shaft) or **B** (double shaft) indicating the configuration is entered where the box □ is located within the product name **AR24S**□**K(D)**-3 or **AR26S**□**K(D)**-3.

*2 Either **A** (single shaft), **B** (double shaft), or **M** (with electromagnetic brake type) indicating the configuration is entered where the box □ is located within the product name **AR46**□**K(D)**-3, **AR66**□**K(D)**-3, **AR69**□**K(D)**-3, or **AR98**□**K(D)**-3.

Overview,
Product
Series

AC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/Geared
RKII

DC Input
Motor &
Driver

0.36°/Geared
Q_{STEP}
AR

0.36°/Geared
Q_{STEP}
Absolute
AZ

0.72°/0.36°
/Geared
CRK

1.8°/Geared
RBK

1.8°/0.9°
/Geared
CMK

0.72°
All-in-One
PKA

Motor Only

1.8°/0.9°
PKP/PK

Geared
PKP

0.72°/0.36°
PKP

Accessories