AUDIN - 8, avenue de la malle - 51370 Saint Brice Courcelles - Tel : 03.26.04.20.21 - Fax : 03.26.04.28.20 - Web : http: www.audin.fr - Email : info@audin.fr

Oriental motor

NEW
PRODUCTS

RoHS RoHS-Compliant

5 Phase Stepping Motor Unit

CRK Series

Type with Built-In Controller

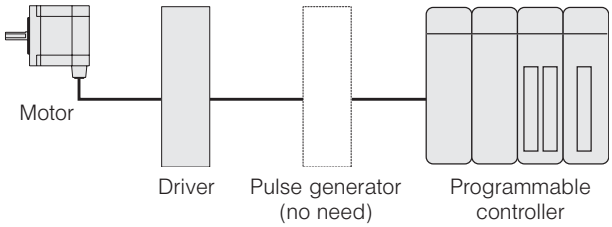
24 VDC Microstep Drive

5 Phase Microstep Stepping Motor Unit with DC-Input and Integrated Controller. Two Control Methods Including I/O-Control can be selected.

Features

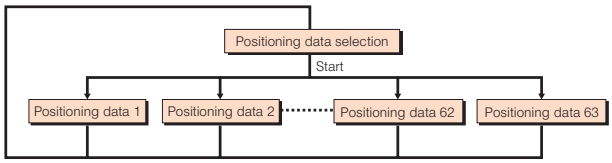
Space-Saving, Less Wiring

The compact driver and the needlessness of a pulse generator make the device space-saving and the system simpler.



Positioning Data of up to 63 Points

Up to 63 points of positioning data can be set in the driver. Each data can be set either in the incremental mode or in the absolute mode.



· The positioning data can be set with the control module OPX-2A (sold separately) or via RS-485 connection.

Three Operating Patterns

Positioning Operation

The motor operation speed and movement distance are set in the positioning data and the operation is realized based on the selected positioning data. Continuous operation and sequential operation can be selected.

Speed Control Operation

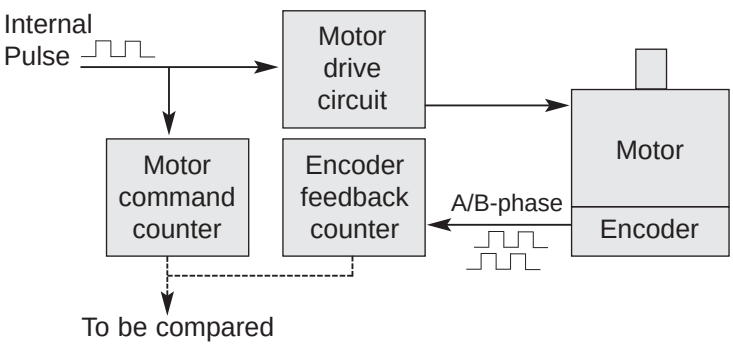
With FWD signal input and RVS signal input the motor operates continuously. As the operation runs with the prior set positioning data, multi-speed operation can be realized by changing the data number.

Return to Home Operation

This function allows an easy return to home operation by using sensors.

Useful Functions

STEPOUT Output Function



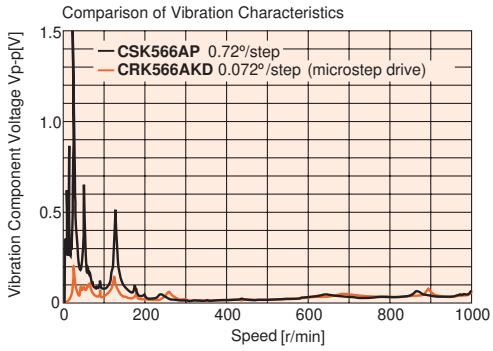
- PLS-OUT Output Function
- Multi-axes Operation Function
- Sensor Input Function
- Teaching Function

· When a commanded position to the motor and a feedback position from the encoder are compared, and an abnormal deviation is detected, STEPOUT (Misstep detection output) is turned on. Warning, or Alarm can be generated as well.
· The motor resolution need not correspond with the encoder resolution because the resolution is matched by the internal encoder electronic gear function.

Low Vibration, Low Noise

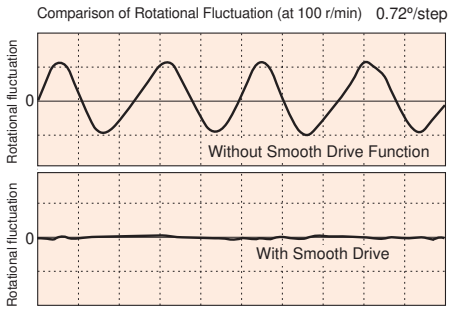
Lower Vibration and Noise Achieved by Microstep Drive

The basic step angle of the motor can be divided into a maximum of 250 microstep angles without using any mechanical element such as a reduction gear. As a result, vibration and noise are further reduced.



Smooth Drive Function for Enhanced Ease of Use

The Smooth Drive Function automatically controls operations via microstep drive, at the same travel distance and speed used in the full-step mode.



Compact Driver for DIN Rail Mounting

Compact DC-Input Driver with Mounting Case

The driver has a compact size of 35 mm (width) x 100 mm (height) x 70 mm (depth) and therefore contributes to a space-saving control box and device.

DIN Rail Mounting Possible

The driver is made for direct DIN rail mounting, screws are not necessary.

Lineup

The standard type and **TH** geared type are available with 42 mm and 60 mm frame size, in total 32 types are provided.

Standard Type

Frame size **42 mm**

Frame size **60 mm**

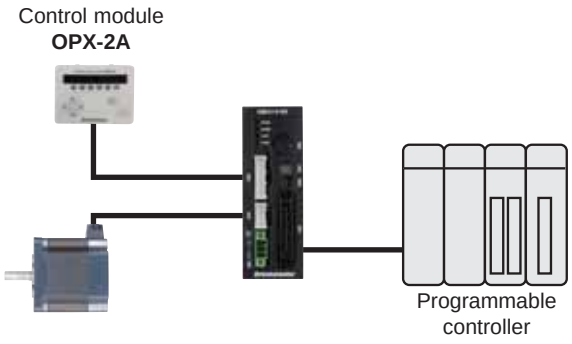
TH Geared Type

Frame size **42 mm**

Frame size **60 mm**

Two control methods

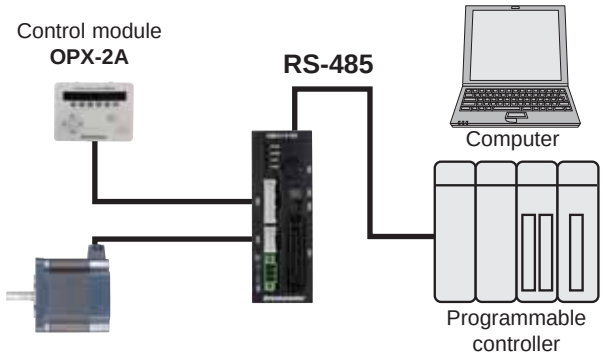
I/O controlled system



I/O control
Setting and input method of operation command

Setting of operation command and parameter	Operation command (START, STOP, etc.)
Control module (OPX-2A)	I/O

RS-485 controlled system

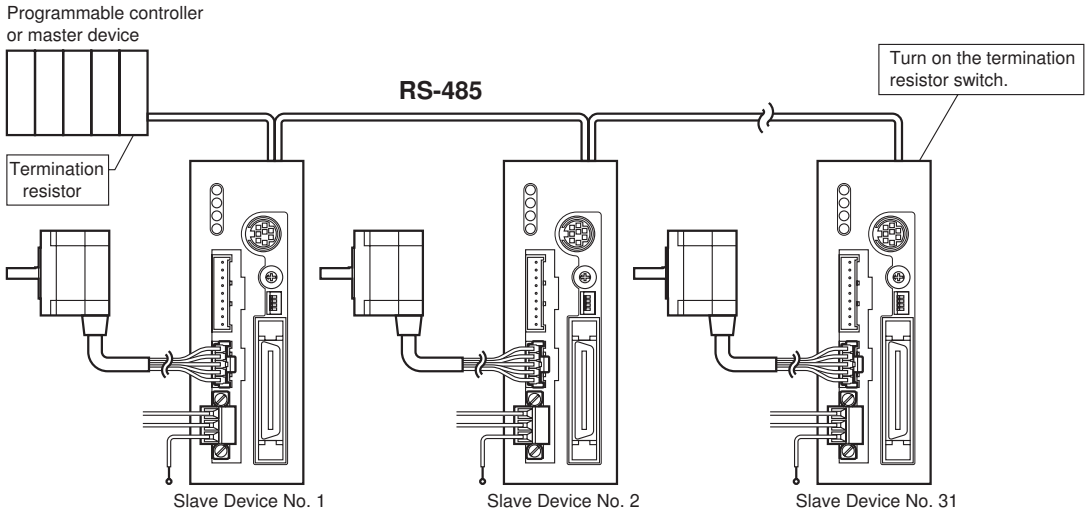


RS-485 control
Setting and input method of operation command

Setting of operation command and parameter	Operation command (START, STOP, etc.)
Control module (OPX-2A) RS-485 communication	I/O RS-485 communication

RS-485 communication - Example of system configuration

Connection example



- Up to 31 units can be connected to a host master.
- Operation data and parameter can be set by the RS-485 communication and OPX-2A.
- Both the I/O and the RS-485 communication can be used for inputting the operation command.

Example:
STOP input ⇨ I/O control
START input ⇨ RS-485 communication control

System Configuration

For I/O Control

Required Product (Sold separately, optional for RS-485 connection)

① Control Module

For RS-485 Connection

Computer (Not supplied)

or

Programmable Controller (Not supplied)

CRK Series (Body)

Motor

Driver

RS-485 Connection

Programmable Controller (Not supplied)

24VDC Power Supply (Not supplied)

Selectable Accessories and Peripheral Equipment (Sold separately)

② Motor Mounting Brackets

③ Flexible Couplings

④ Clean Dampers

⑤ Extension Cables

⑥ Lead Wire with Connector (For encoder connection)

No.	Product Name	Overview
①	Control Module	This Control Module lets you set various data (edit, monitor, operate) and comes with a communication cable (5 m).
②	Motor Mounting Brackets	Dedicated mounting bracket for the motor.
③	Flexible Couplings	Coupling that connects the motor shaft to the driven shaft.
④	Clean Dampers	Dedicated damper for suppressing stepping motor vibration.
⑤	Extension Cables	Cable for extending the wiring distance between the motor and driver (5 m, 10 m).
⑥	Lead Wire with Connector (For encoder connection)	Lead wire with Connector. Cable to connect the encoder with the driver (0.6 m).

Example of System Configuration

For I/O Control:

CRK Series	Control Module		Extension Cable (5m)	Motor Mounting Bracket	Flexible Coupling	Clean Damper
CRK566BKD	OPX-2A	+	CC05PK5	PAL2P-5	MCS300808	D6CL-8.0F

For RS-485 Connection:

CRK Series		Control Module	Extension Cable (5m)	Motor Mounting Bracket	Flexible Coupling	Clean Damper
CRK566BKD	+	OPX-2A	CC05PK5	PAL2P-5	MCS300808	D6CL-8.0F

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

Product Number Code

CRK 5 6 4 A K D – T 10

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Series	**CRK** Series
②	**5**: 5-phase	
③	Motor Frame Size	**4**: 42 mm **6**: 60 mm
④	Motor Case Length	
⑤	Motor Shaft Type	**A**: Single shaft **B**: Double shaft
⑥	Power Supply Input	**K**: DC24V
⑦	Driver Type	**D**: Stored data type
⑧	Gearhead Type	**None**: Standard type **T**: TH geared type
⑨	Gear Ratio	

Standard Type Motor Frame Size **42** mm, **60** mm

Specifications RoHS

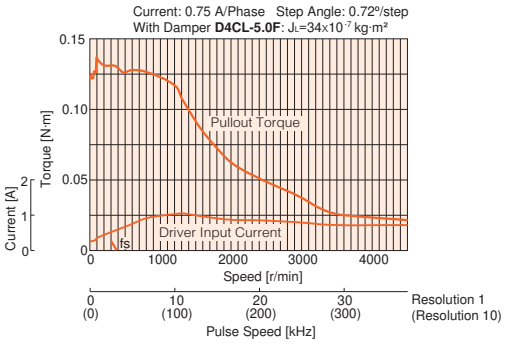
CE

	Single Shaft	**CRK543AKD**	**CRK544AKD**	**CRK545AKD**	**CRK564AKD**	**CRK566AKD**	**CRK569AKD**
	Double Shaft	**CRK543BKD**	**CRK544BKD**	**CRK545BKD**	**CRK564BKD**	**CRK566BKD**	**CRK569BKD**
Maximum Holding Torque	N·m	0.13	0.18	0.24	0.42	0.83	1.66
Rotor Inertia	J: kg·m²	35x10⁻⁷	54x10⁻⁷	68x10⁻⁷	175x10⁻⁷	280x10⁻⁷	560x10⁻⁷
Rated Current	A/Phase	0.75			1.4		
Basic Step Angle		0.72°					
Power Source		24 VDC±10% 1.4 A			24 VDC±10% 2.5 A		
Excitation Mode		Microstep					
Mass	Motor kg	0.25	0.3	0.4	0.6	0.8	1.3
	Driver kg	0.2					
Dimension No.	Motor	1			2		
	Driver	5					

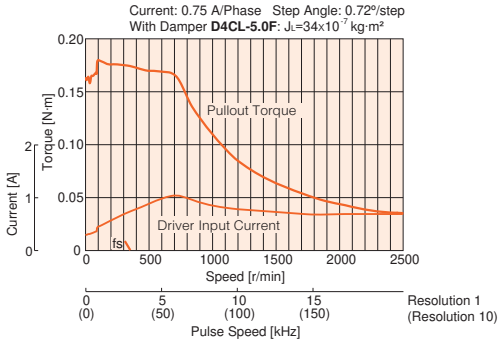
Speed - Torque Characteristics

fs: Starting Frequency

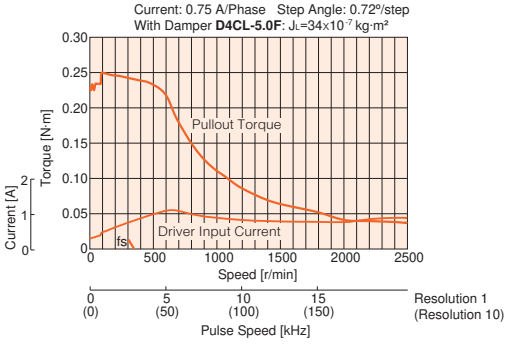
CRK543AKD/CRK543BKD



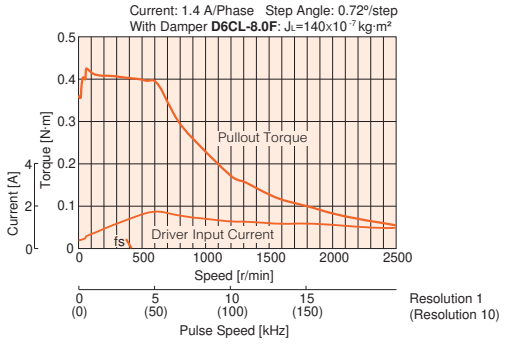
CRK544AKD/CRK544BKD



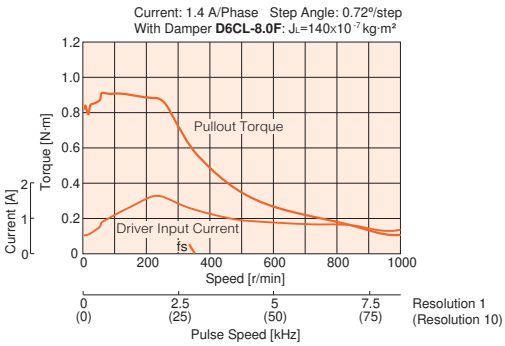
CRK545AKD/CRK545BKD



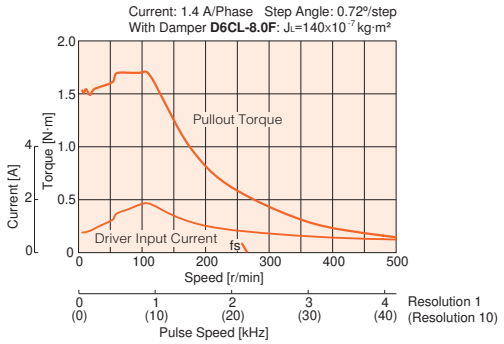
CRK564AKD/CRK564BKD



CRK566AKD/CRK566BKD



CRK569AKD/CRK569BKD



Notes:
- Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C.
- The driver's automatic current cutback function at motor standstill reduces maximum holding torque by approximately 50 %.

TH Geared Type Motor Frame Size 42 mm

Specifications RoHS

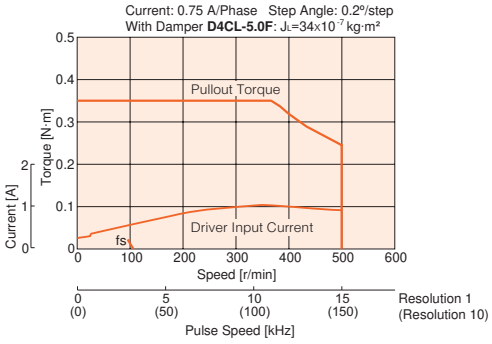
CE

	Single Shaft	CRK543AKD-T3.6	CRK543AKD-T7.2	CRK543AKD-T10	CRK543AKD-T20	CRK543AKD-T30
	Double Shaft	CRK543BKD-T3.6	CRK543BKD-T7.2	CRK543BKD-T10	CRK543BKD-T20	CRK543BKD-T30
Maximum Holding Torque	N·m	0.35	0.7	1	1.5	
Rotor Inertia	J: g·m²	35x10⁻⁷				
Rated Current	A/Phase	0.75				
Basic Step Angle		0.2°	0.1°	0.072°	0.036°	0.024°
Gear Ratio		1: 3.6	1: 7.2	1: 10	1: 20	1: 30
Permissible Torque	N·m	0.35	0.7	1	1.5	
Backlash	degrees	0.75°	0.417°		0.25°	
Permissible Speed Range	r/min	0~500	0~250	0~180	0~90	0~60
Power Source		24 VDC±10% 1.4 A				
Excitation Mode		Microstep				
Mass	Motor kg	0.35				
	Driver kg	0.2				
Dimension No.	Motor	3				
	Driver	5				

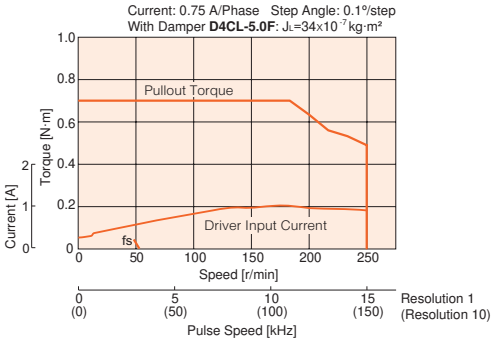
Notes:
・Direction of rotation of the motor and that of the gear output shaft are the same for the gear ratios 1:3.6, 1:7.2 and 1:10. It is the opposite for 1:20 and 1:30 gear ratios.

Speed - Torque Characteristics fs: Starting Frequency

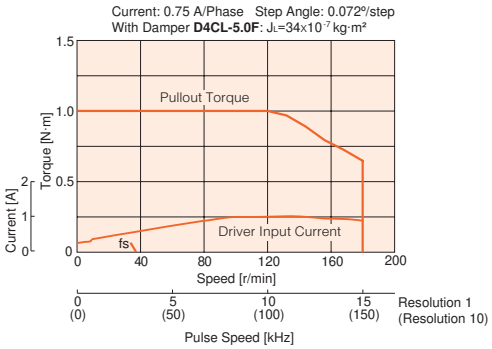
CRK543AKD-T3.6/CRK543BKD-T3.6



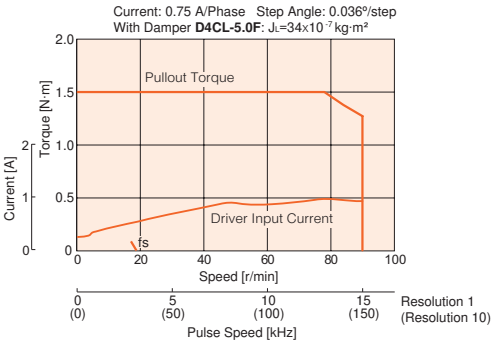
CRK543AKD-T7.2/CRK543BKD-T7.2



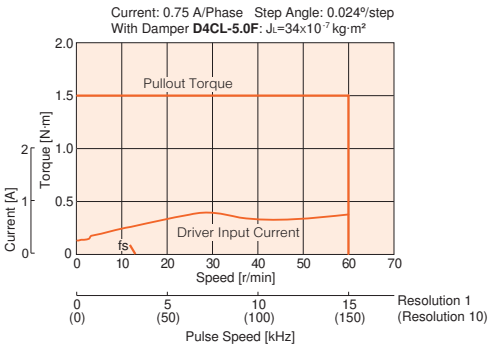
CRK543AKD-T10/CRK543BKD-T10



CRK543AKD-T20/CRK543BKD-T20



CRK543AKD-T30/CRK543BKD-T30



Notes:
・Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C.
・The driver's automatic current cutback function at motor standstill reduces maximum holding torque by approximately 50 %.

TH Geared Type Motor Frame Size 60 mm

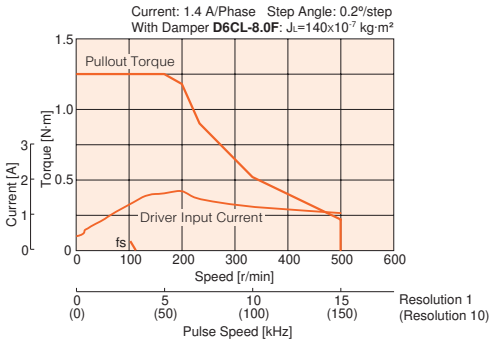
Specifications RoHS

	Single Shaft	CRK564AKD-T3.6	CRK564AKD-T7.2	CRK564AKD-T10	CRK564AKD-T20	CRK564AKD-T30
	Double Shaft	CRK564BKD-T3.6	CRK564BKD-T7.2	CRK564BKD-T10	CRK564BKD-T20	CRK564BKD-T30
Maximum Holding Torque	N·m	1.25	2.5	3	3.5	4
Rotor Inertia	J: g·m²	175x10⁻⁷				
Rated Current	A/Phase	1.4				
Basic Step Angle		0.2°	0.1°	0.072°	0.036°	0.024°
Gear Ratio		1: 3.6	1: 7.2	1: 10	1: 20	1: 30
Permissible Torque	N·m	1.25	2.5	3	3.5	4
Backlash	degrees	0.584°	0.25°		0.167°	
Permissible Speed Range	r/min	0~500	0~250	0~180	0~90	0~60
Power Source		24 VDC±10% 2.5 A				
Excitation Mode		Microstep				
Mass	Motor kg	0.95				
	Driver kg	0.2				
Dimension No.	Motor	4				
	Driver	5				

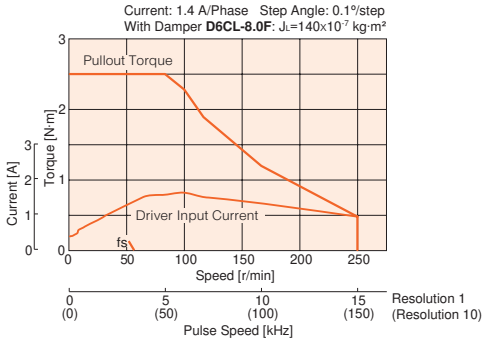
Notes:
· Direction of rotation of the motor and that of the gear output shaft are the same for the gear ratios 1:3.6, 1:7.2 and 1:10. It is the opposite for 1:20 and 1:30 gear ratios.

Speed - Torque Characteristics fs: Starting Frequency

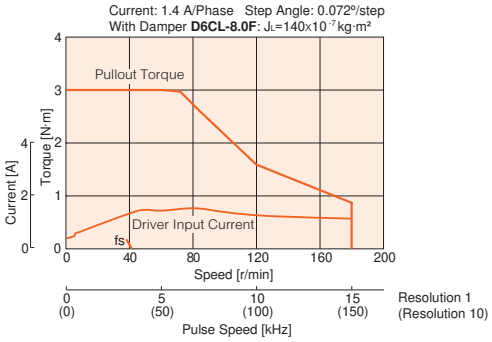
CRK564AKD-T3.6/CRK564BKD-T3.6



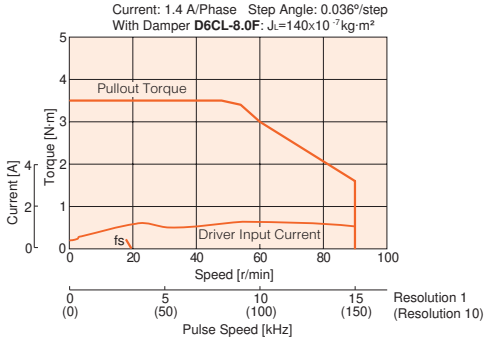
CRK564AKD-T7.2/CRK564BKD-T7.2



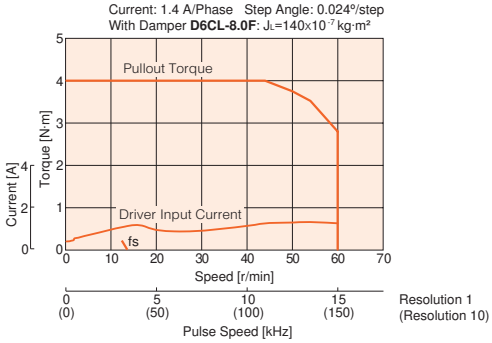
CRK564AKD-T10/CRK564BKD-T10



CRK564AKD-T20/CRK564BKD-T20



CRK564AKD-T30/CRK564BKD-T30



Notes:
· Pay attention to heat dissipation from motor as there will be a considerable amount of heat under certain conditions. Be sure to keep the temperature of the motor case under 100°C.
· The driver's automatic current cutback function at motor standstill reduces maximum holding torque by approximately 50 %.

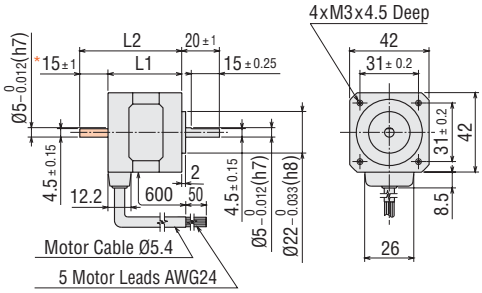
Dimensions (Unit = mm)

Motor

Standard Type

1 ☐ 42 mm

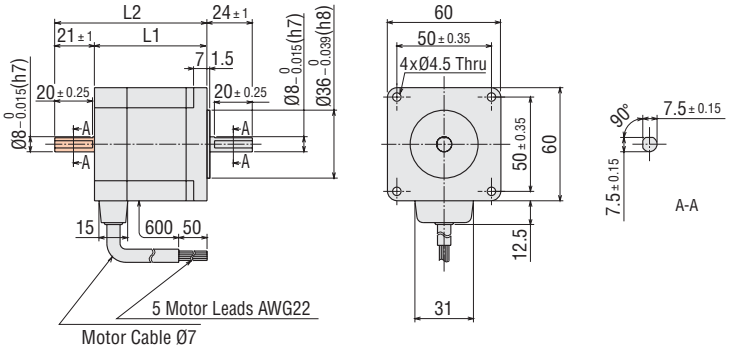
Model	Motor Model	L1	L2	Mass (kg)
CRK543AKD	PK543AW	33	–	0.25
CRK543BKD	PK543BW		48	
CRK544AKD	PK544AW	39	–	0.3
CRK544BKD	PK544BW		54	
CRK545AKD	PK545AW	47	–	0.4
CRK545BKD	PK545BW		62	



* The length of machining on double shaft model is 15 ± 0.25 mm.

2 ☐ 60 mm

Model	Motor Model	L1	L2	Mass (kg)
CRK564AKD	PK564AW	48.5	–	0.6
CRK564BKD	PK564BW		69.5	
CRK566AKD	PK566AW	59.5	–	0.8
CRK566BKD	PK566BW		80.5	
CRK569AKD	PK569AW	89	–	1.3
CRK569BKD	PK569BW		110	

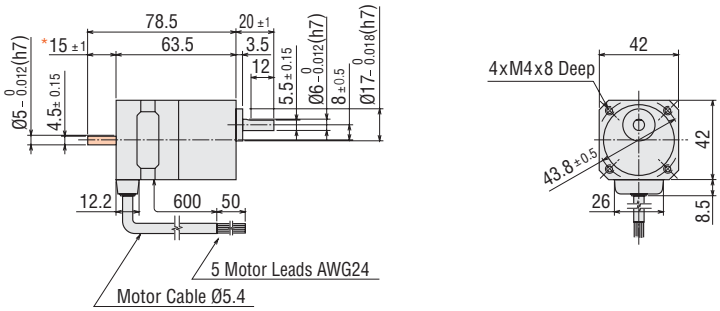


TH Geared Type

3 ☐ 42 mm

Model	Motor Model	Gear Ratio	Mass (kg)
CRK543AKD-T☐	PK543AW-T☐	**3.6, 7.2, 10, 20, 30**	0.35
CRK543BKD-T☐	PK543BW-T☐		

· Enter the gear ratio in the box (☐) within the model name.

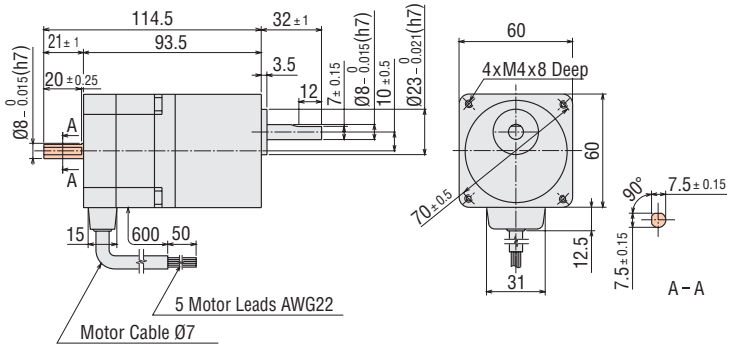


* The length of machining on double shaft model is 15 ± 0.25 mm.

4 ☐ 60 mm

Model	Motor Model	Gear Ratio	Mass (kg)
CRK564AKD-T☐	PK564AW-T☐	**3.6, 7.2, 10, 20, 30**	0.95
CRK564BKD-T☐	PK564BW-T☐		

· Enter the gear ratio in the box (☐) within the model name.



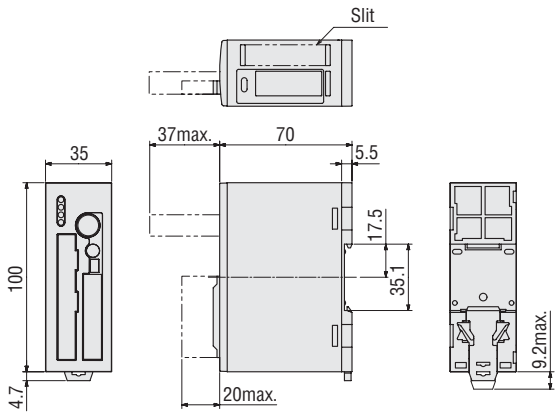
· These dimensions are for double shaft models. For single shaft models, ignore the orange ▭ areas.

Dimensions (Unit = mm)

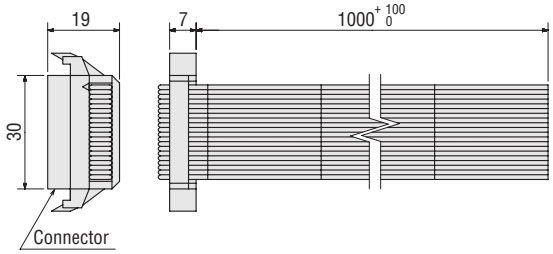
● Driver

5 Driver Model: CRD507-KD, CRD514-KD

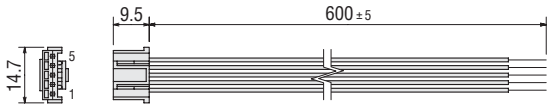
Mass: 0.2 kg



● Cable with Connector



● Lead Wire with Connector (For Motor Connection)



Power Supply Connector (CN1)
- Connector: MC1,5/3-STF-3,5 (PHOENIX CONTACT)

Cable with Connector (CN2, length: 1 m)
- Connector: FX2B-40SA-1.27R (HIROSE Electric)

Lead Wire with Connector (for motor connection) (CN4, length: 0.6 m)
- Connector Housing: 51103-0500 (MOLEX)
- Contact: 50351-8100 (MOLEX)
- Hand Crimper: 57295-5000 (MOLEX)

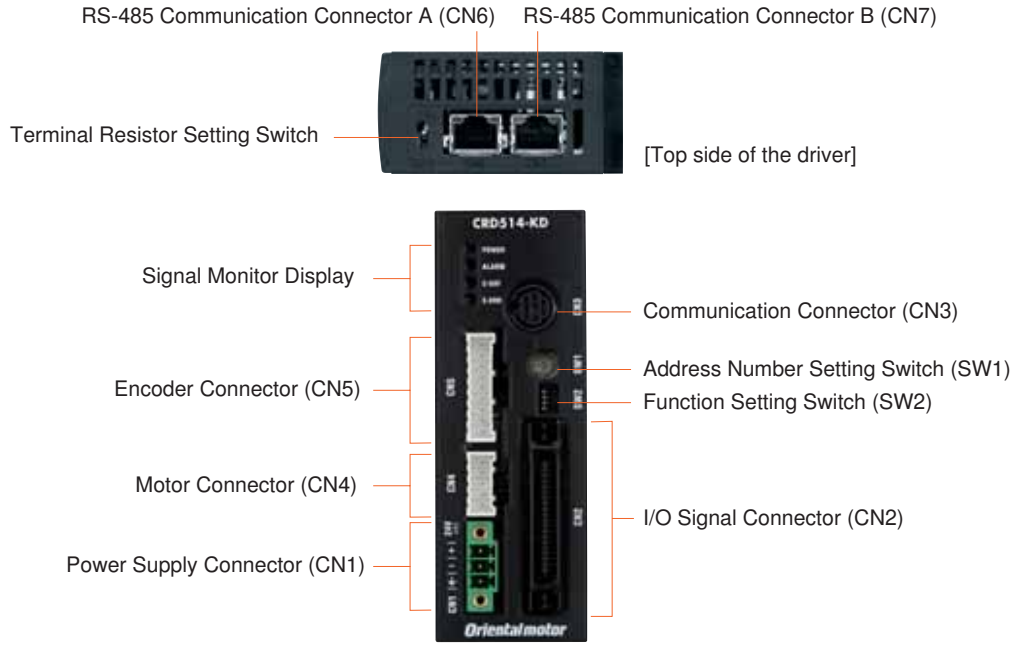
● In case of ordering only the driver for example for repair, the lead wire with connector, the cable with connector and the power supply connector are included.

Product Line

Type	Motor Frame Size	Model	Motor Model	Driver Model
Standard Type	□ **42 mm**	**CRK543AKD**	PK543AW	CRD507-KD
		CRK543BKD	PK543BW	
		CRK544AKD	PK544AW	
		CRK544BKD	PK544BW	
		CRK545AKD	PK545AW	
		CRK545BKD	PK545BW	
	□ **60 mm**	**CRK564AKD**	PK564AW	CRD514-KD
		CRK564BKD	PK564BW	
		CRK566AKD	PK566AW	
		CRK566BKD	PK566BW	
		CRK569AKD	PK569AW	
		CRK569BKD	PK569BW	
TH Geared Type	□ **42 mm**	**CRK543AKD-T3.6**	PK543AW-T3.6	CRD507-KD
		CRK543BKD-T3.6	PK543BW-T3.6	
		CRK543AKD-T7.2	PK543AW-T7.2	
		CRK543BKD-T7.2	PK543BW-T7.2	
		CRK543AKD-T10	PK543AW-T10	
		CRK543BKD-T10	PK543BW-T10	
		CRK543AKD-T20	PK543AW-T20	
		CRK543BKD-T20	PK543BW-T20	
		CRK543AKD-T30	PK543AW-T30	
		CRK543BKD-T30	PK543BW-T30	
	□ **60 mm**	**CRK564AKD-T3.6**	PK564AW-T3.6	CRD514-KD
		CRK564BKD-T3.6	PK564BW-T3.6	
		CRK564AKD-T7.2	PK564AW-T7.2	
		CRK564BKD-T7.2	PK564BW-T7.2	
		CRK564AKD-T10	PK564AW-T10	
		CRK564BKD-T10	PK564BW-T10	
		CRK564AKD-T20	PK564AW-T20	
		CRK564BKD-T20	PK564BW-T20	
		CRK564AKD-T30	PK564AW-T30	
		CRK564BKD-T30	PK564BW-T30	

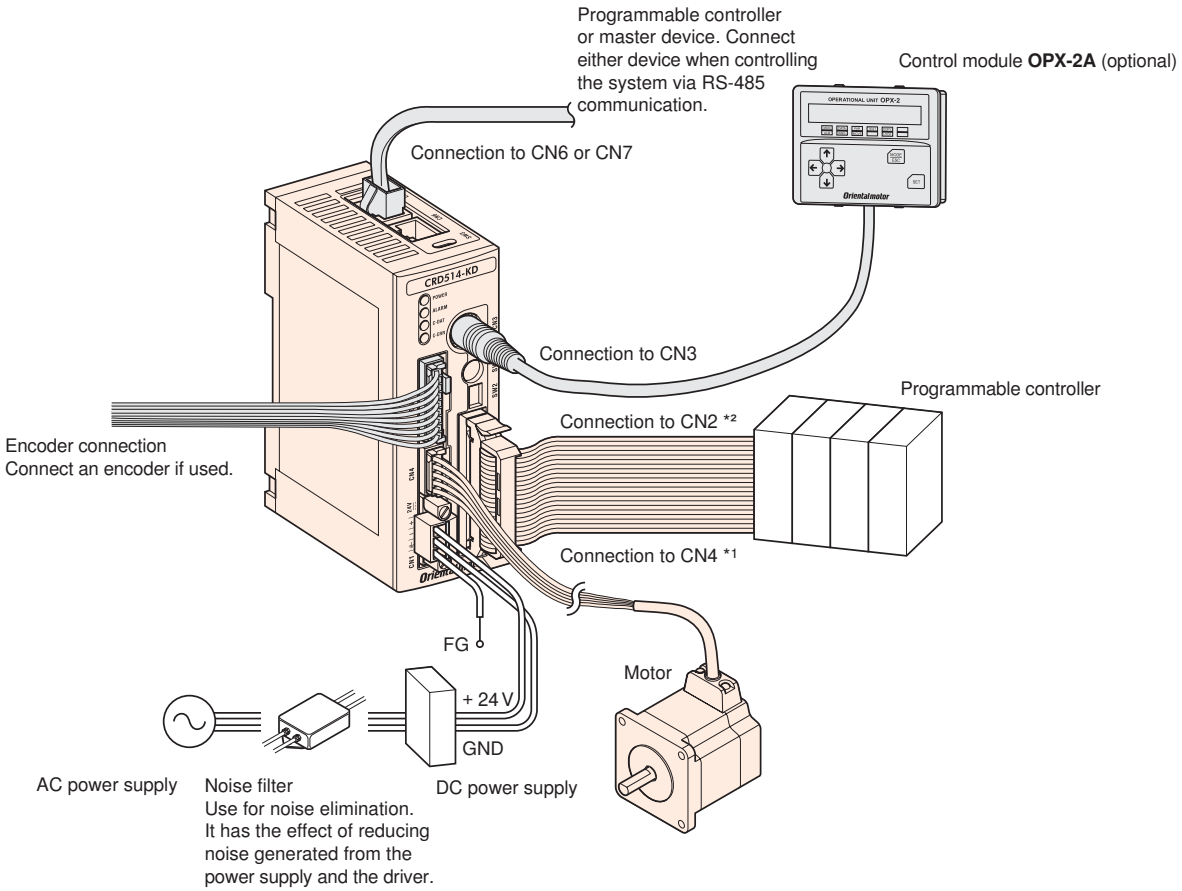
Connection and Operation

Names and Functions of Driver Parts



Connection Diagrams

Connection to Peripheral Equipment



*1 When ordering the unit or only the driver the 0.6 m lead wire with connector is included.
*2 When ordering the unit or only the driver the 1 m cable with connector is included.

Accessories (Sold separately)

Control Module RoHS

You can change the positioning data, various parameter and you can use it as a monitor.

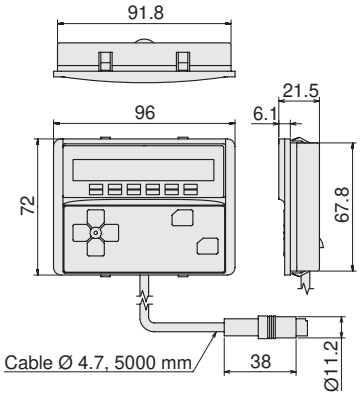
Product Line

Model
OPX-2A

Dimensions (Unit = mm)

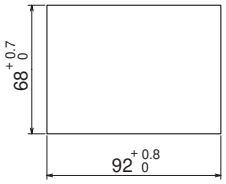
Control Module

Mass: 0.25 kg



Panel Cut-Out for Control

(Thickness of the mounting plate: 1-3 mm)



Lead Wire with Connector

For Motor Connection

Crimped lead wire for the connection of motor and driver. When ordering a unit, a 0.6 m lead wire with connector is included.

For Encoder Connection

Crimped lead wire for the connection of encoder and driver.

Product Line

Model	Purpose	Length L (mm)	Conductor AWG
LC5N06B	For motor connection	600	22 (0.3 mm²)
LC5N10B		1000	
LC09A-006	For encoder connection	600	

For **motor** connection

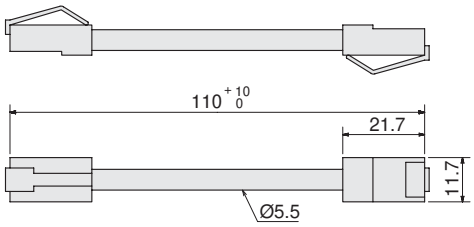
For **encoder** connection

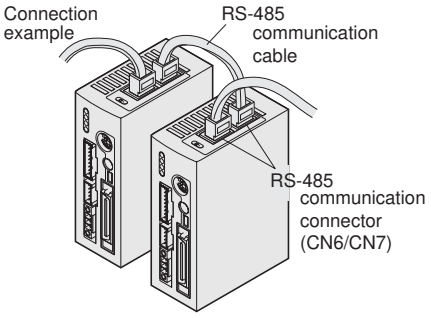
RS-485 Communication Cable

Cable to connect the drivers in case of multi-axes operation.

Product Line

Model	Length L (m)
CC001-RS4	0.1





· For more Accessories please check on page 5.

This product is manufactured at a plant certified with the international standards **ISO 9001** (for quality assurance) and **ISO 14001** (for systems of environmental management).

Specifications are subject to change without notice.
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