Ezi-SERVO® CC-Link IE TSN 4X

Closed Loop Stepping System

- CC-Link IE TSN-compatible Closed Loop Stepper System
- CiA402 Drive Profile
- Compact Multi-Axis Drive (Max. 4-Axis)
- Space Saving, Reduced Wiring
- Tuning Not Required, No Hunting
- High Resolution Encoder, Fast Response
- Low Heat Generation, High Torque



FASTECH

Fast Accurate Smooth Motion

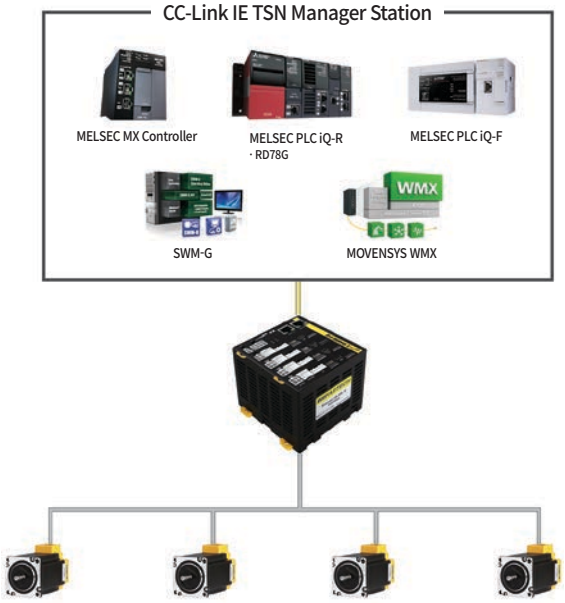
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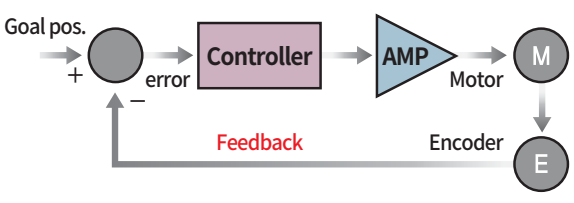
CC-Link IE TSN-compatible Motion Control

Ezi-SERVO CC-Link IE TSN 4X is stepper motor control system using CC-Link IE TSN, high speed Ethernet (1 Gbps Full-Duplex) based industrial network.
Ezi-SERVO CC-Link IE TSN 4X employs CiA402 drive profile and supports Profile Position Mode (PP Mode), Homing Mode (HM Mode) and Cyclic Synchronous Position Mode (CSP Mode).



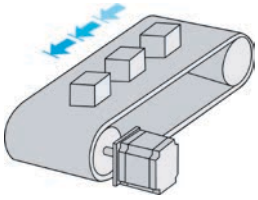
Closed-Loop System

Ezi-SERVO is an innovative Closed-Loop System that utilizes a high-resolution motor mounted encoder constantly to monitor the current position. The encoder feedback allows the Ezi-SERVO to update the current position every 50 µs. It allows the Ezi-SERVO drive to compensate for the loss of position, ensuring accurate positioning. For example, due to a sudden load change, a conventional stepper motor and drive could lose a step but Ezi-SERVO automatically correct the position by encoder feedback.



Tuning Not Required

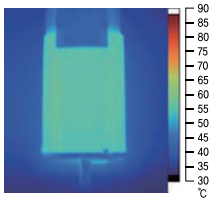
To ensure machine performance, conventional servo systems require the adjustment of its servo's gains as an initial crucial step. Even systems that employ auto-tuning require manual tuning after the system is installed.
Ezi-SERVO employs the best characteristics of the stepper motor to eliminate the need of tedious gain tuning required for conventional closed-loop servo systems. Ezi-SERVO is especially well suited for low-rigidity loads (e.g., a belt and pulley system) that sometimes require conventional servo systems to use the additional bulky and expensive gearbox.



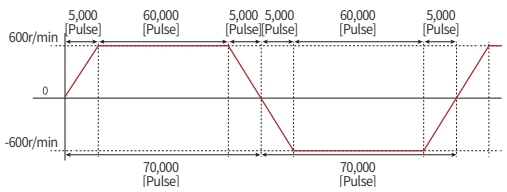
Low Heat Generation / Energy Savings

(Motor Current Control according to load)

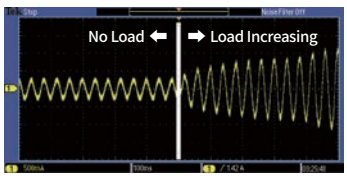
Ezi-SERVO automatically controls motor current according to load.
Ezi-SERVO reduces motor current when motor load is low and increases motor current when load is high. By optimizing the motor current, motor heat can be minimized and energy can be saved.



Motor temperature [Measured by Thermal Imaging Camera]



Condition to measure the motor temperature
[4 hours operation, Motor surface temperature saturation]

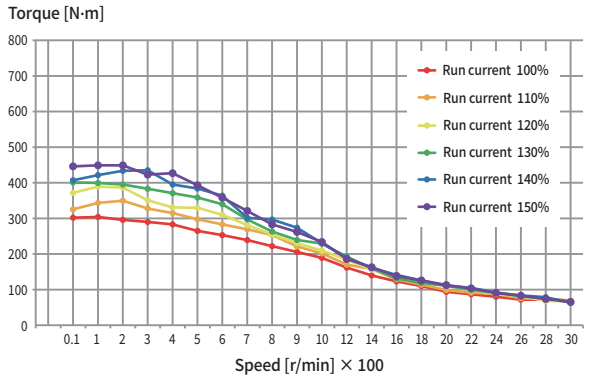


Motor Current
[Example of the Motor Current Control according to load]

High Torque

(Motor Voltage Increasing and Motor Current Setting)

Ezi-SERVO features an internal voltage boosting circuit that increases the motor supply voltage above the drive's input voltage. This elevated motor voltage enhances torque at high speeds and allows the run current to be set up to 150 %. As a result, torque is also improved at low speeds. Ezi-SERVO can achieve approximately 30 % torque improvement across the entire speed range.



※ Torque is improved by approximately 30 % at both low speeds.

Measurement Condition: Drive = Ezi-SERVOV-CT-4X-42L

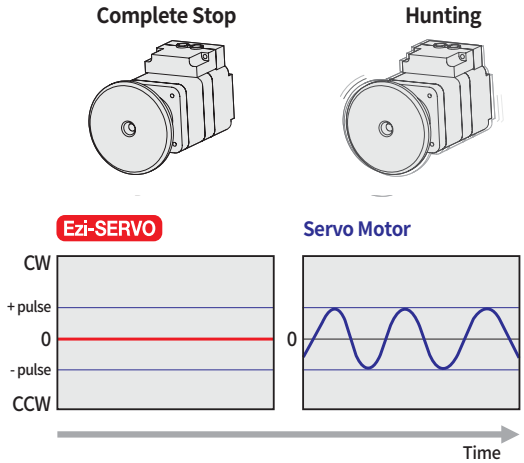
· Motor Voltage = 24 V DC

· Input Voltage = 24 V DC

No Hunting

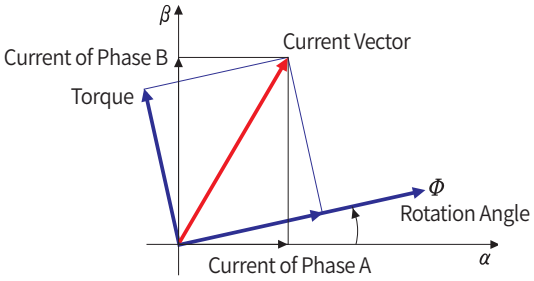
Ezi-SERVO utilizes the unique characteristics of stepper motors and locks itself into the desired target position, preventing vibration and eliminating Null Hunt which happens to the conventional servo systems.

This feature is especially useful in applications such as vision systems in which system oscillation and vibration could be a problem.



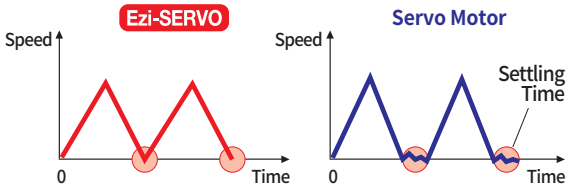
Smooth and Accurate Operation

Ezi-SERVO is a high-precision servo drive, using a high-resolution encoder with 20,000 pulse/revolution. Unlike a conventional Microstep drive, the on-board high performance MCU (Micro Controller Unit) performs vector control and filtering, producing a smooth rotational control with minimum ripples.



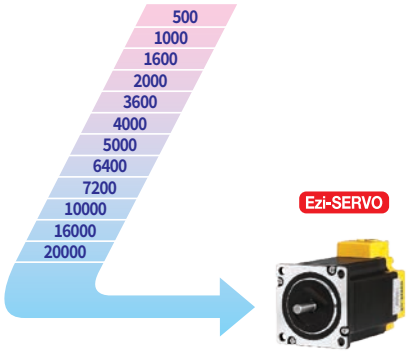
Fast Response

Similar to conventional stepper motors, Ezi-SERVO instantly synchronizes with command pulses providing fast positional response. Ezi-SERVO is the optimum choice when zero-speed stability and rapid motions within a short distance are required. Traditional servo motor systems have a natural delay called settling time between the command input signals and the resultant motion because of the constant monitoring of the current position.



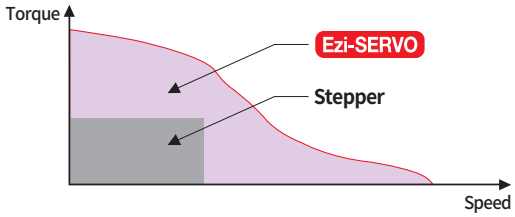
High Resolution

The unit of the position command can be divided precisely. (Max. 20,000 pulse/revolution)



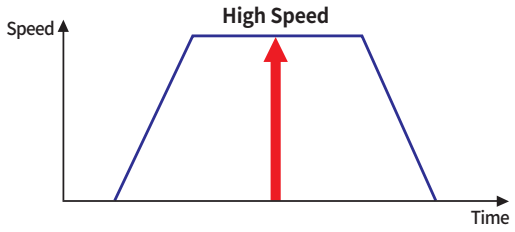
High Torque / Continuous Operation

Compared with common stepper motors and drives, Ezi-SERVO motion control systems can maintain a high torque state over relatively long period of time. This means that Ezi-SERVO continuously operates without loss of position under 100 % of the load. Unlike conventional Microstep drives, Ezi-SERVO exploits continuous high torque operation during high speed motion due to its innovative optimum current phase control.



High Speed

The Ezi-SERVO operates well at high speed without the loss of synchronism or positioning error. Ezi-SERVO 's ability to monitor current position continuously enables the stepper motor to generate high torque, even under a 100 % load condition.



Product Lineup Enhancement

Ezi-SERVO CC-Link IE TSN 4X offers two motor types: Solid Shaft and Hollow Shaft. Solid Shaft motors are general-purpose motors suitable for a wide variety of industrial applications and are available in three configurations: standard, with a brake option, or with a gearbox option. Hollow Shaft motors feature a through-bore shaft for cable and air tube routing. This design saves wiring space, enables compact and lightweight machine designs, and increases design flexibility.

Motor Flange Size	Solid Shaft Motor			Hollow Shaft Motor (Inner Dia. mm)
	Standard	Brake Option	Gearhead Option	
20 mm	O	-	-	O (Ø3)
28 mm	O	-	-	O (Ø6)
35 mm	O	-	-	O (Ø8)
42 mm	O	O	O	O (Ø8)
56 mm	O	O	O	O (Ø12)
60 mm	O	O	O	-

[Applications of Hollow Shaft Motors]

Optical Instrument	Cable Feed-Through	Dispensing System
		

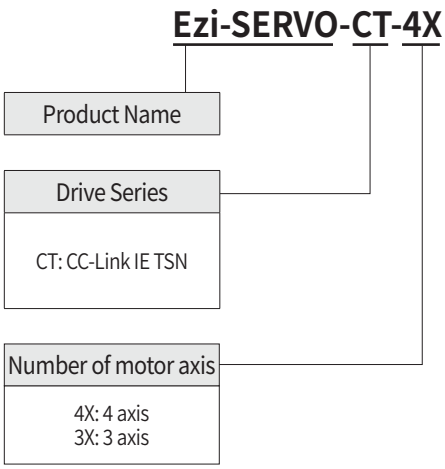
Advantages over Open-Loop Stepper Systems

1. Reliable Positioning Control Control without loss of synchronism.
2. Excellent holding torque at standstill, and automatically recovering to the original position even after experiencing positioning error due to external forces, such as mechanical vibration or vertical positional holding.
3. Ezi-SERVO utilizes 100 % of the full range of rated motor torque, contrary to a conventional open-loop stepper drive that can use up to 50 % of the rated motor torque due to the loss of synchronism.
4. Capability to operate at high speed due to load-dependent current control, open-loop stepper drives use a constant current control at all speed ranges without considering load variations. (Max. Speed : 3,000 r/min)

Advantages over Servo Motor Controller

1. No gain tuning. (Automatic gain adjustment in response to a load change)
2. Maintains the stable holding position without oscillation after completion of positioning.
3. Fast positioning due to the independent control by on-board MCU.
4. Continuous operation during rapid short-stroke movement due to instantaneous positioning.

Ezi-SERVO CC-Link IE TSN 4X Part Numbering



※ Ezi-SERVO CC-Link IE TSN 4X can connect up to 4 motors to one drive. Standard motors, motors with brake, and motors with gearbox can be connected, and different types of motors can be connected to each axis.

Standard Combination : Solid Shaft Motor

Motor Model Number
EzM2-20M-F
EzM2-20L-F
EzM2-28S-D
EzM2-28SM-D
EzM2-28M-D
EzM2-28MM-D
EzM2-28L-D
EzM2-28LM-D
EzM2-35M-D
EzM2-35MM-D
EzM2-35L-D
EzM2-35LM-D
EzM2-42S-A
EzM2-42S-B
EzM2-42M-A
EzM2-42M-B
EzM2-42L-A
EzM2-42L-B
EzM2-42XL-A
EzM2-42XL-B

Motor Model Number
EzM2-56S-A
EzM2-56S-B
EzM2-56M-A
EzM2-56M-B
EzM2-56L-A
EzM2-56L-B
EzM2-60S-A
EzM2-60S-B
EzM2-60M-A
EzM2-60M-B
EzM2-60L-A
EzM2-60L-B

※ When places an order for Stopper type 28 mm, 35 mm motor, please write “M” additionally after motor length of unit part number. (e.g., Ezi-SERVO-CT-4X-28LM-D, Ezi-SERVO-CT-4X-35LM-D)

Combination with Brake

Motor Model Number
EzM2-42S-A-BK
EzM2-42S-B-BK
EzM2-42M-A-BK
EzM2-42M-B-BK
EzM2-42L-A-BK
EzM2-42L-B-BK
EzM2-42XL-A-BK
EzM2-42XL-B-BK
EzM2-56S-A-BK
EzM2-56S-B-BK
EzM2-56M-A-BK
EzM2-56M-B-BK
EzM2-56L-A-BK
EzM2-56L-B-BK
EzM2-60S-A-BK
EzM2-60S-B-BK
EzM2-60M-A-BK
EzM2-60M-B-BK
EzM2-60L-A-BK
EzM2-60L-B-BK

Standard Combination : Hollow Shaft Motor

Motor Model Number
HSE-P20M-F
HSE-P20L-F
HSE-P28SM-D
HSE-P28MM-D
HSE-P35MM-D
HSE-P35LM-D
HSE-P42S-A
HSE-P42S-B
HSE-P42L-A
HSE-P42L-B
HSE-P56S-A
HSE-P56S-B
HSE-P56M-A
HSE-P56M-B

Combination with Gearbox

Motor Model Number	Gear Ratio
EzM2-42S-A-PN3	1:3
EzM2-42S-B-PN3	
EzM2-42S-A-PN5	1:5
EzM2-42S-B-PN5	
EzM2-42S-A-PN8	1:8
EzM2-42S-B-PN8	
EzM2-42S-A-PN10	1:10
EzM2-42S-B-PN10	
EzM2-42S-A-PN15	1:15
EzM2-42S-B-PN15	
EzM2-42S-A-PN25	1:25
EzM2-42S-B-PN25	
EzM2-42S-A-PN40	1:40
EzM2-42S-B-PN40	
EzM2-42S-A-PN50	1:50
EzM2-42S-B-PN50	
EzM2-42M-A-PN3	1:3
EzM2-42M-B-PN3	
EzM2-42M-A-PN5	1:5
EzM2-42M-B-PN5	
EzM2-42M-A-PN8	1:8
EzM2-42M-B-PN8	
EzM2-42M-A-PN10	1:10
EzM2-42M-B-PN10	
EzM2-42M-A-PN15	1:15
EzM2-42M-B-PN15	
EzM2-42M-A-PN25	1:25
EzM2-42M-B-PN25	
EzM2-42M-A-PN40	1:40
EzM2-42M-B-PN40	
EzM2-42M-A-PN50	1:50
EzM2-42M-B-PN50	
EzM2-42L-A-PN3	1:3
EzM2-42L-B-PN3	
EzM2-42L-A-PN5	1:5
EzM2-42L-B-PN5	
EzM2-42L-A-PN8	1:8
EzM2-42L-B-PN8	
EzM2-42L-A-PN10	1:10
EzM2-42L-B-PN10	
EzM2-42L-A-PN15	1:15
EzM2-42L-B-PN15	
EzM2-42L-A-PN25	1:25
EzM2-42L-B-PN25	
EzM2-42L-A-PN40	1:40
EzM2-42L-B-PN40	
EzM2-42L-A-PN50	1:50
EzM2-42L-B-PN50	
EzM2-42XL-A-PN3	1:3
EzM2-42XL-B-PN3	
EzM2-42XL-A-PN5	1:5
EzM2-42XL-B-PN5	
EzM2-42XL-A-PN8	1:8
EzM2-42XL-B-PN8	
EzM2-42XL-A-PN10	1:10
EzM2-42XL-B-PN10	
EzM2-42XL-A-PN15	1:15
EzM2-42XL-B-PN15	
EzM2-42XL-A-PN25	1:25
EzM2-42XL-B-PN25	
EzM2-42XL-A-PN40	1:40
EzM2-42XL-B-PN40	
EzM2-42XL-A-PN50	1:50
EzM2-42XL-B-PN50	

Motor Model Number	Gear Ratio
EzM2-56S-A-PN3	1:3
EzM2-56S-B-PN3	
EzM2-56S-A-PN5	1:5
EzM2-56S-B-PN5	
EzM2-56S-A-PN8	1:8
EzM2-56S-B-PN8	
EzM2-56S-A-PN10	1:10
EzM2-56S-B-PN10	
EzM2-56S-A-PN15	1:15
EzM2-56S-B-PN15	
EzM2-56S-A-PN25	1:25
EzM2-56S-B-PN25	
EzM2-56S-A-PN40	1:40
EzM2-56S-B-PN40	
EzM2-56S-A-PN50	1:50
EzM2-56S-B-PN50	
EzM2-56M-A-PN3	1:3
EzM2-56M-B-PN3	
EzM2-56M-A-PN5	1:5
EzM2-56M-B-PN5	
EzM2-56M-A-PN8	1:8
EzM2-56M-B-PN8	
EzM2-56M-A-PN10	1:10
EzM2-56M-B-PN10	
EzM2-56M-A-PN15	1:15
EzM2-56M-B-PN15	
EzM2-56M-A-PN25	1:25
EzM2-56M-B-PN25	
EzM2-56M-A-PN40	1:40
EzM2-56M-B-PN40	
EzM2-56M-A-PN50	1:50
EzM2-56M-B-PN50	
EzM2-56L-A-PN3	1:3
EzM2-56L-B-PN3	
EzM2-56L-A-PN5	1:5
EzM2-56L-B-PN5	
EzM2-56L-A-PN8	1:8
EzM2-56L-B-PN8	
EzM2-56L-A-PN10	1:10
EzM2-56L-B-PN10	
EzM2-56L-A-PN15	1:15
EzM2-56L-B-PN15	
EzM2-56L-A-PN25	1:25
EzM2-56L-B-PN25	
EzM2-56L-A-PN40	1:40
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EzM2-56L-A-PN50	1:50
EzM2-56L-B-PN50	

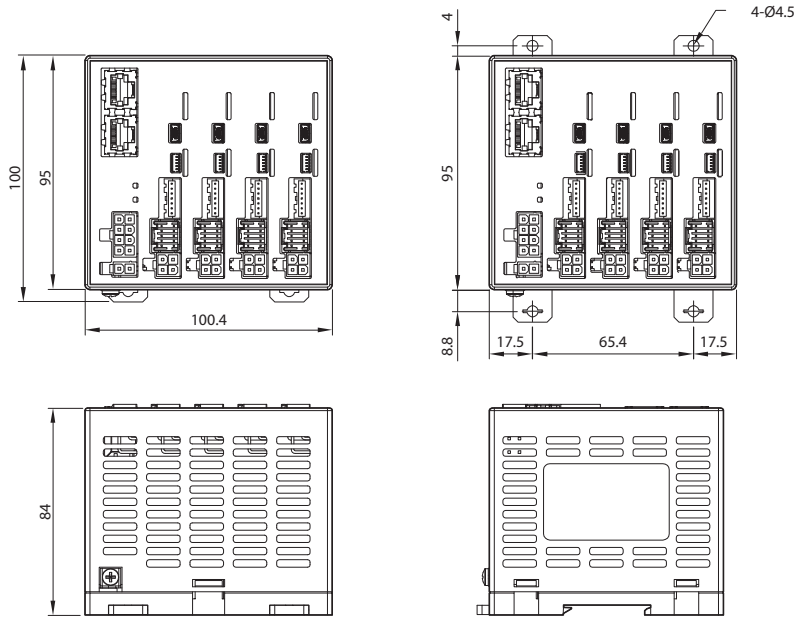
Motor Model Number	Gear Ratio
EzM2-60S-A-PN3	1:3
EzM2-60S-B-PN3	
EzM2-60S-A-PN5	1:5
EzM2-60S-B-PN5	
EzM2-60S-A-PN8	1:8
EzM2-60S-B-PN8	
EzM2-60S-A-PN10	1:10
EzM2-60S-B-PN10	
EzM2-60S-A-PN15	1:15
EzM2-60S-B-PN15	
EzM2-60S-A-PN25	1:25
EzM2-60S-B-PN25	
EzM2-60S-A-PN40	1:40
EzM2-60S-B-PN40	
EzM2-60S-A-PN50	1:50
EzM2-60S-B-PN50	
EzM2-60M-A-PN3	1:3
EzM2-60M-B-PN3	
EzM2-60M-A-PN5	1:5
EzM2-60M-B-PN5	
EzM2-60M-A-PN8	1:8
EzM2-60M-B-PN8	
EzM2-60M-A-PN10	1:10
EzM2-60M-B-PN10	
EzM2-60M-A-PN15	1:15
EzM2-60M-B-PN15	
EzM2-60M-A-PN25	1:25
EzM2-60M-B-PN25	
EzM2-60M-A-PN40	1:40
EzM2-60M-B-PN40	
EzM2-60M-A-PN50	1:50
EzM2-60M-B-PN50	
EzM2-60L-A-PN3	1:3
EzM2-60L-B-PN3	
EzM2-60L-A-PN5	1:5
EzM2-60L-B-PN5	
EzM2-60L-A-PN8	1:8
EzM2-60L-B-PN8	
EzM2-60L-A-PN10	1:10
EzM2-60L-B-PN10	
EzM2-60L-A-PN15	1:15
EzM2-60L-B-PN15	
EzM2-60L-A-PN25	1:25
EzM2-60L-B-PN25	
EzM2-60L-A-PN40	1:40
EzM2-60L-B-PN40	
EzM2-60L-A-PN50	1:50
EzM2-60L-B-PN50	

Specifications of Drive

Motor Model		EzM2-20 HSE-P20 series	EzM2-28 HSE-P28 series	EzM2-35 HSE-P35 series	EzM2-42 HSE-P42 series	EzM2-56 HSE-P56 series	EzM2-60 series
Drive Model		**EzS2-CT-4X, 3X series**					
Input Voltage		24 V DC ± 10 %					
Control Method		Closed loop control with 32bit MCU					
Current Consumption		Max. 500 mA/axis (Except motor current)					
Operating Condition	Ambient Temperature	· In Use: 0 ~ 50 °C · In Storage: -20 ~ 70 °C					
	Humidity	· In Use: 35 ~ 85 % RH (Non-Condensing) · In Storage : 10 ~ 90 % RH (Non-Condensing)					
	Vib. Resist.	0.5 g					
Function	Rotation Speed	0 ~ 3,000 r/min *1					
	Resolution	Encoder Resolution [P/R] / Configurable Resolution [P/R] 4,000 / 500, 1,000, 1,600, 2,000, 3,600, 4,000, 5,000, 6,400, 7,200, 10,000 10,000 / 500, 1,000, 1,600, 2,000, 3,600, 5,000, 6,400, 7,200, 10,000 16,000 / 500, 1,000, 1,600, 2,000, 3,600, 5,000, 6,400, 7,200, 10,000, 16,000 20,000 / 500, 1,000, 1,600, 2,000, 3,600, 5,000, 6,400, 7,200, 10,000, 20,000 (Selectable by parameter)					
	Error Type	Over Current Error, Over Speed Error, Position Tracking Error, Over Load Error, Over Temperature Error, Over Regenerative Voltage Error, Motor Connection Error, Encoder Connection Error, Main Power Voltage Error, In-Position Error, ROM Error, Position Overflow Error					
	LED Display	Power status, In-Position status, Servo On status, Alarm status					
CC-Link IE TSN	Communication Protocol	CC-Link IE TSN Class B					
	Operation Mode	CiA402 Drive Profile: Cyclic Synchronous Position Mode(CSP), Profile Position Mode(PP), Homing Mode(HM)					
	Synchronization	Minimum Cycle Time: 250 µs / Synchronous Comm. (CSP, PP, HM) / Asynchronous Comm. (PP, HM)					
I/O Signal	Input Signals	3 dedicated inputs (LIMIT+, LIMIT-, ORIGIN) for each axis					
	Output Signals	1 brake signal output for each axis					

*1: Up to the resolution of 10,000 P/R, maximum speed can be reached by 3,000 r/min and with the resolution more than 10,000 P/R, maximum speed shall be reduced accordingly.

Dimensions of Drive [mm]



※ Can be installed on DIN Rail. (35 mm)
※ Outer dimension of Ezi-SERVO CC-Link IE TSN 3X drive is the same as Ezi-SERVO CC-Link IE TSN 4X drive.

Specifications of Solid Shaft Motor

MODEL				EzM2-20 series		EzM2-28 series			EzM2-35 series		EzM2-42 series			
			UNIT	20M	20L	28S	28M	28L	35M	35L	42S	42M	42L	42XL
Drive method			-	Bipolar										
Number of phase			-	2 Phase										
Current per Phase			A/Phase	0.5	0.5	0.95	0.95	0.95	1.5	1.5	1.2	1.2	1.2	1.2
Maximum Holding Torque			N·m	0.016	0.025	0.069	0.098	0.118	0.13	0.23	0.32	0.44	0.5	0.65
Rotor Inertia			g·cm²	2.5	3.3	9.0	13	18	15	20	35	54	77	114
Motor Weight			kg	0.080	0.104	0.147	0.204	0.232	0.194	0.226	0.294	0.357	0.426	0.564
Length (L)			mm	28	38	32	45	50	32	36	34	40	48	60
Permissible Radial Load	Distance From End of Shaft	3 mm	N	18	18	30	30	30	22	22	22	22	22	22
		8 mm		30	30	38	38	38	26	26	26	26	26	26
		13 mm		-	-	53	53	53	33	33	33	33	33	33
		18 mm		-	-	-	-	-	46	46	46	46	46	46
Permissible Axial Load			N	Must be less than the motor weight										
Insulation Resistance			MΩ	Min. 100 (When measured with a 500 V DC insulation resistance meter)										
Insulation Class			-	Class B (130 °C)										
Operating Temperature			°C	0 ~ 55										

MODEL				EzM2-56 series			EzM2-60 series		
			UNIT	56S	56M	56L	60S	60M	60L
Drive method			-	Bipolar					
Number of phase			-	2 Phase					
Current per Phase			A/Phase	3.0	3.0	3.0	4.0	4.0	4.0
Maximum Holding Torque			N·m	0.64	1.0	1.5	0.88	1.28	2.4
Rotor Inertia			g·cm²	180	280	520	240	490	690
Motor Weight			kg	0.608	0.784	1.230	0.693	0.856	1.419
Length (L)			mm	46	55	80	47	56	85
Permissible Radial Load	Distance From End of Shaft	3 mm	N	52	52	52	70	70	70
		8 mm		65	65	65	87	87	87
		13 mm		85	85	85	114	114	114
		18 mm		123	123	123	165	165	165
Permissible Axial Load			N	Must be less than the motor weight					
Insulation Resistance			MΩ	Min. 100 (When measured with a 500 V DC insulation resistance meter)					
Insulation Class			-	Class B (130 °C)					
Operating Temperature			°C	0 ~ 55					

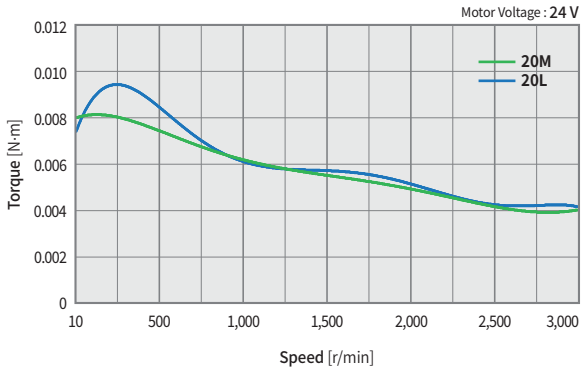
Specifications of Hollow Shaft Motor

MODEL			UNIT	HSE-P20 series		HSE-P28 series		HSE-P35 series	
				P20M	P20L	P28S	P28M	P35M	P35L
Drive method			-	Bipolar					
Number of phase			-	2 Phase					
Current per Phase			A/Phase	0.5	0.5	1.0	1.4	1.2	1.2
Maximum Holding Torque			N·m	0.014	0.02	0.053	0.14	0.18	0.34
Rotor Inertia			g·cm²	1.6	2.9	9	12	20	24
Motor Weight			kg	0.04	0.06	0.1	0.15	0.21	0.23
Length (L)			mm	28.7	39.8	32.2	45.2	37.3	45.3
Permissible Radial Load	Distance From End of Shaft	3 mm	N	18	18	38	38	22	22
		8 mm		30	30	53	53	26	26
		13 mm		-	-	-	-	33	33
		18 mm		-	-	-	-	46	46
Permissible Axial Load			N	Must be less than the motor weight					
Insulation Resistance			MΩ	Min. 100 (When measured with a 500 V DC insulation resistance meter)					
Insulation Class			-	Class B (130 °C)					
Operating Temperature			°C	0 ~ 55					

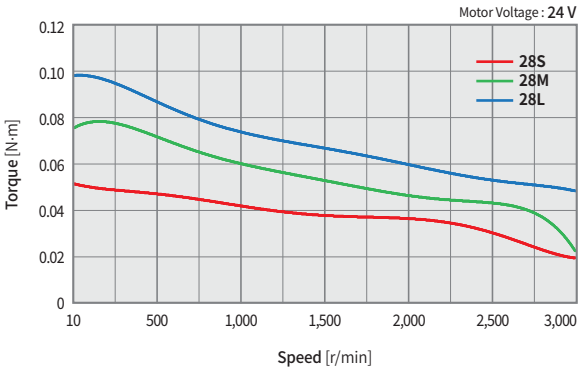
MODEL			UNIT	HSE-P42 series		HSE-P56 series	
				P42S	P42L	P56S	P56M
Drive method			-	Bipolar			
Number of phase			-	2 Phase			
Current per Phase			A/Phase	1.0	2.5	2.6	2.5
Maximum Holding Torque			N·m	0.31	0.56	1.0	1.5
Rotor Inertia			g·cm²	35	77	180	350
Motor Weight			kg	0.24	0.36	0.52	0.85
Length (L)			mm	34.4	48.4	45.7	64.7
Permissible Radial Load	Distance From End of Shaft	3 mm	N	22	22	52	52
		8 mm		26	26	65	65
		13 mm		33	33	85	85
		18 mm		46	46	123	123
Permissible Axial Load			N	Must be less than the motor weight			
Insulation Resistance			MΩ	Min. 100 (When measured with a 500 V DC insulation resistance meter)			
Insulation Class			-	Class B (130 °C)			
Operating Temperature			°C	0 ~ 55			

Torque Characteristics of Solid Shaft Motor

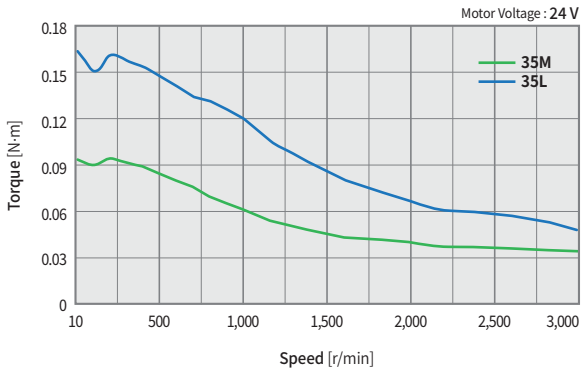
Ezi-SERVO-CT-4X-20 series



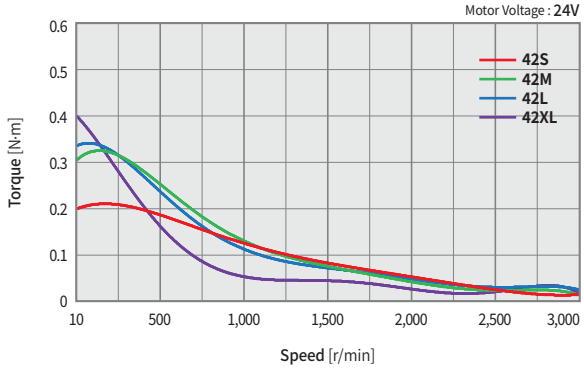
Ezi-SERVO-CT-4X-28 series



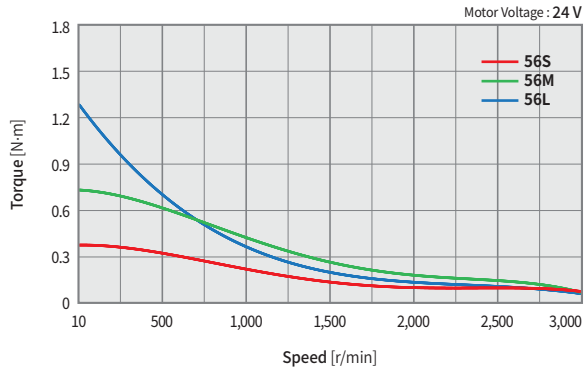
Ezi-SERVO-CT-4X-35 series



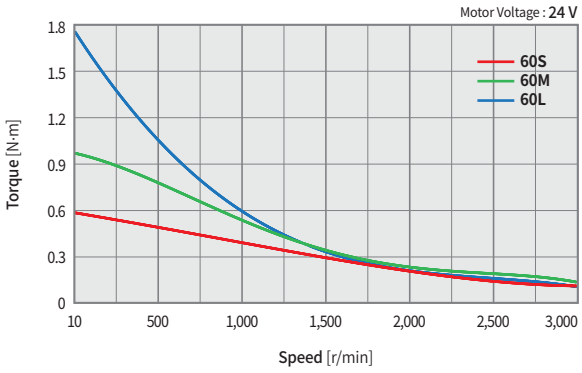
Ezi-SERVO-CT-4X-42 series



Ezi-SERVO-CT-4X-56 series

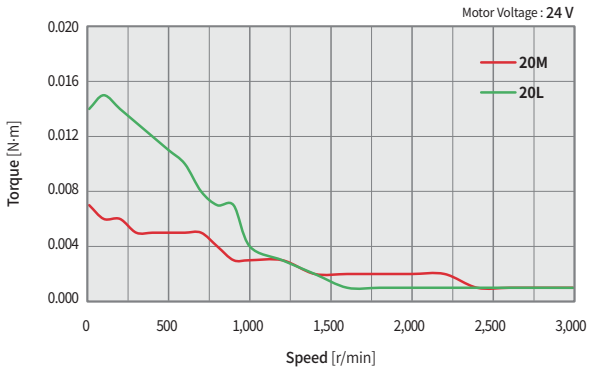


Ezi-SERVO-CT-4X-60 series

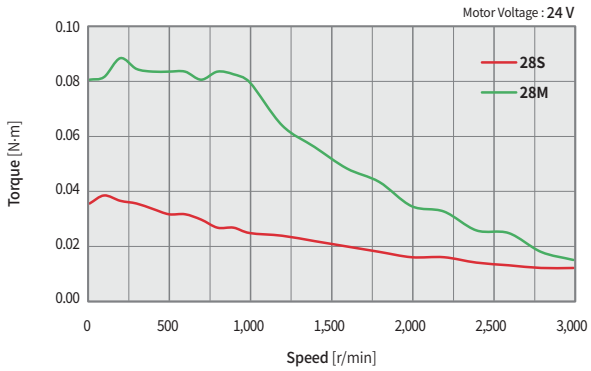


Torque Characteristics of Hollow Shaft Motor

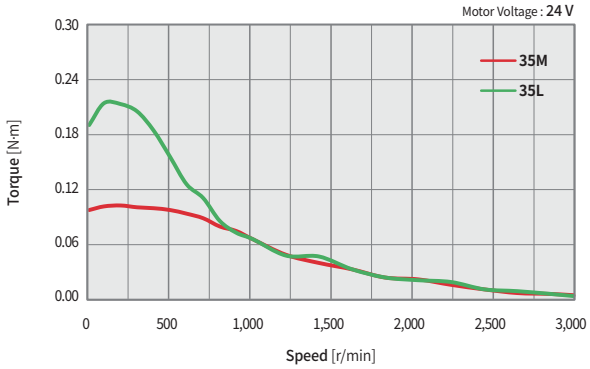
Ezi-SERVO-CT-4X-HSP20 series



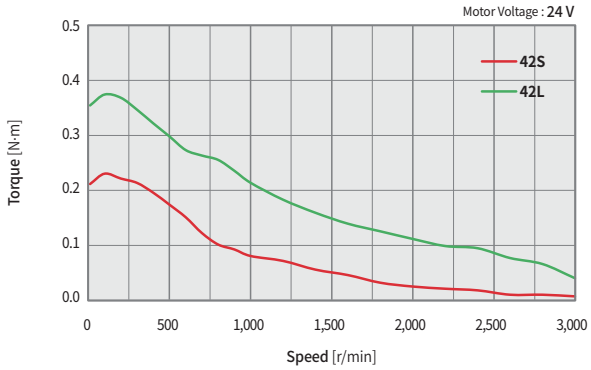
Ezi-SERVO-CT-4X-HSP28 series



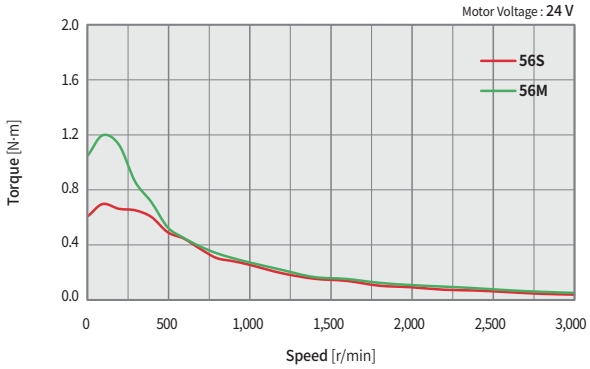
Ezi-SERVO-CT-4X-HSP35 series



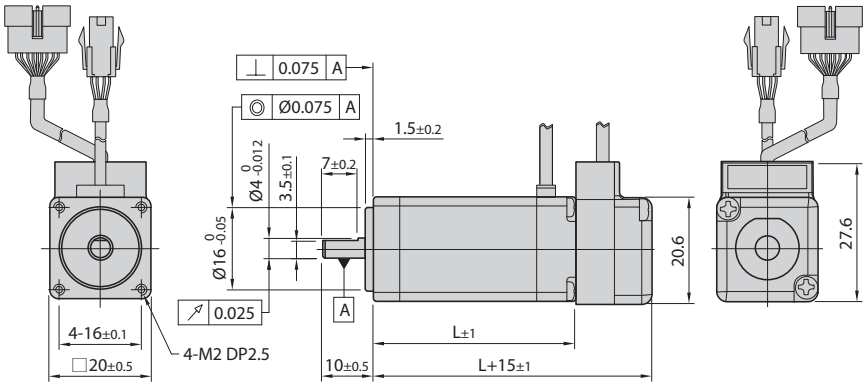
Ezi-SERVO-CT-4X-HSP42 series



Ezi-SERVO-CT-4X-HSP56 series

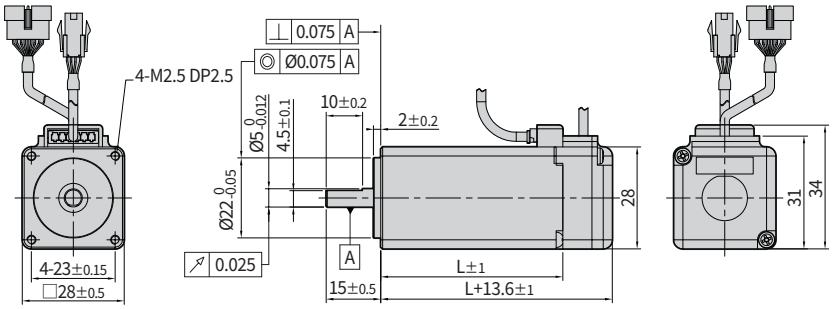


Dimensions of Solid Shaft Motor [mm]



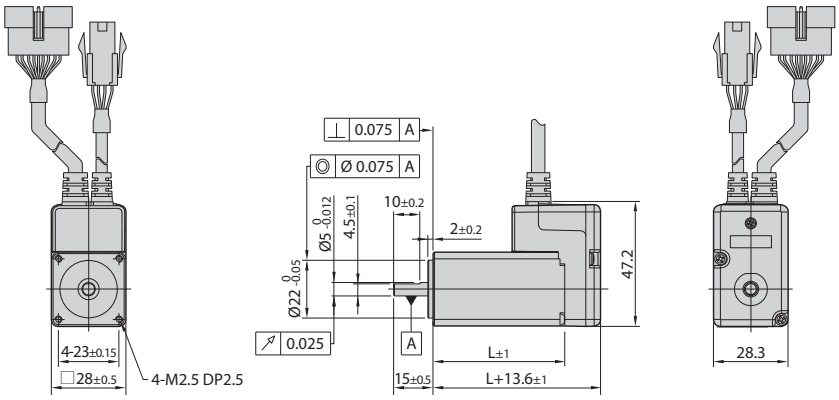
20 mm

Model name	Length (L)
EzM2-20M	27.3
EzM2-20L	37.6



28 mm

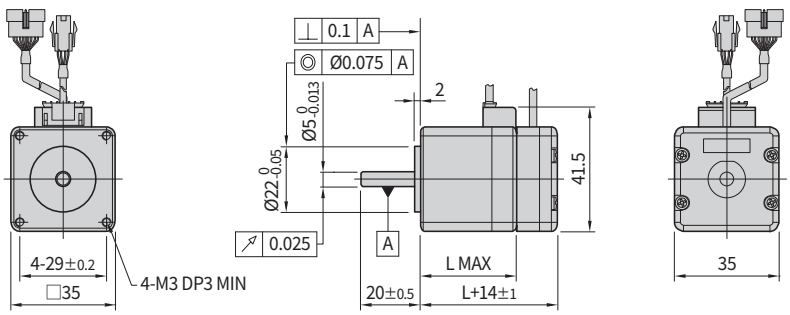
Model name	Length (L)
EzM2-28S	32
EzM2-28M	45
EzM2-28L	50



28 mm
(Stopper type)

Model name	Length (L)
EzM2-28SM	32
EzM2-28MM	45
EzM2-28LM	50

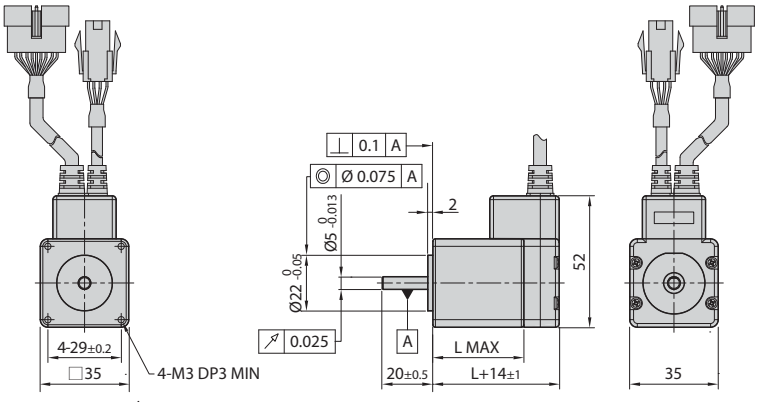
※ When ordering 28 mm Stopper type of motor, please add“M”after standard motor model number.



35 mm

Model name	Length (L)
EzM2-35M	32
EzM2-35L	36

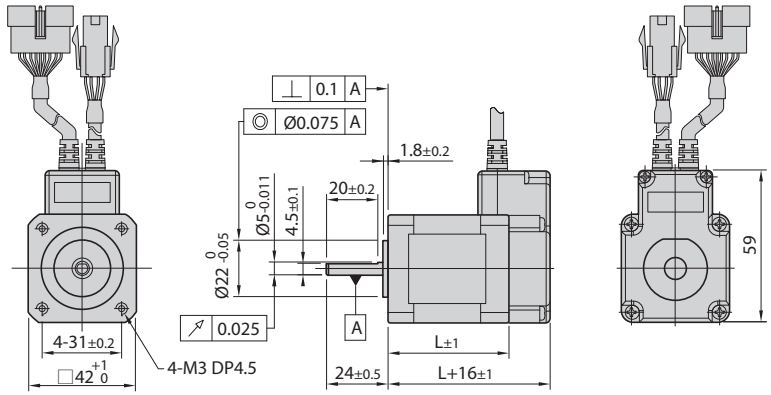
Dimensions of Solid Shaft Motor [mm]



35 mm
(Stopper type)

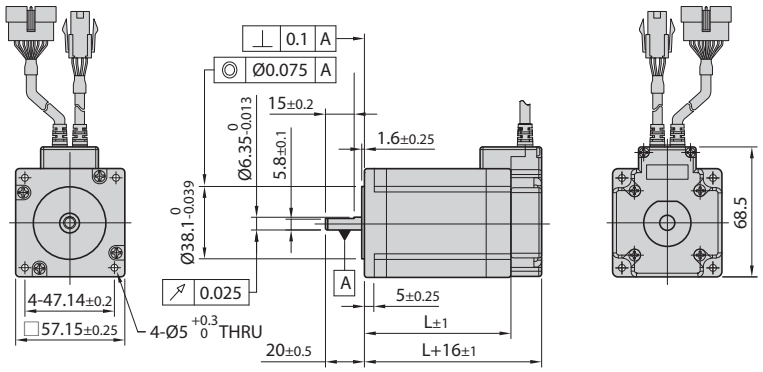
Model name	Length (L)
EzM2-35MM	32
EzM2-35LM	36

※ When ordering 35 mm Stopper type of motor, please add"M"after standard motor model number.



42 mm

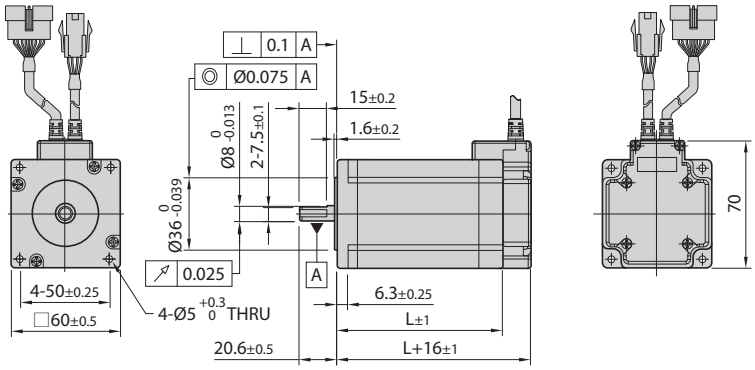
Model name	Length (L)
EzM2-42S	34
EzM2-42M	40
EzM2-42L	48
EzM2-42XL	60



56 mm

Model name	Length (L)
EzM2-56S	46
EzM2-56M	55
EzM2-56L	80

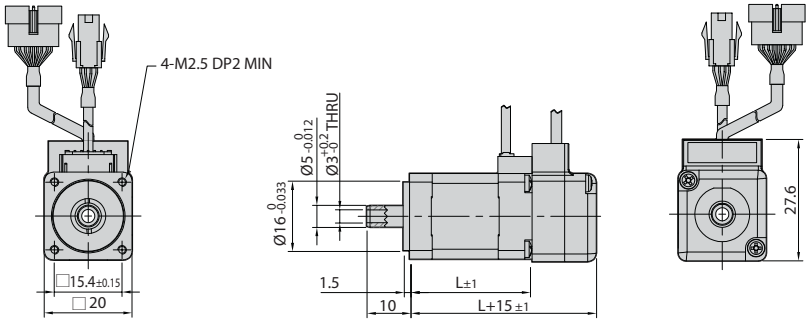
※ There are 2 kinds of size of front shaft diameter for EzM2-56 series as Ø 6.35 and Ø 8.0



60 mm

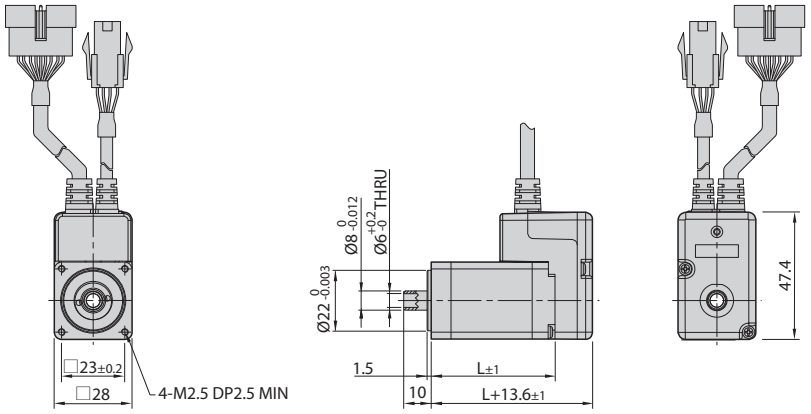
Model name	Length (L)
EzM2-60S	47
EzM2-60M	56
EzM2-60L	85

Dimensions of Hollow Shaft Motor [mm]



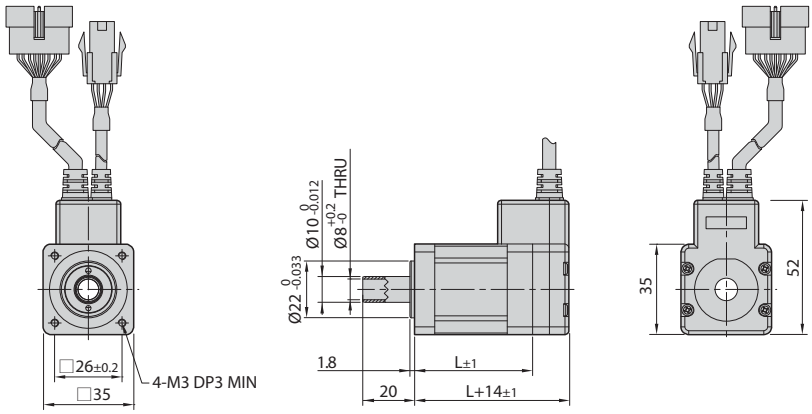
20 mm

Model name	Length (L)
HSE-P20M	28.7
HSE-P20L	39.2



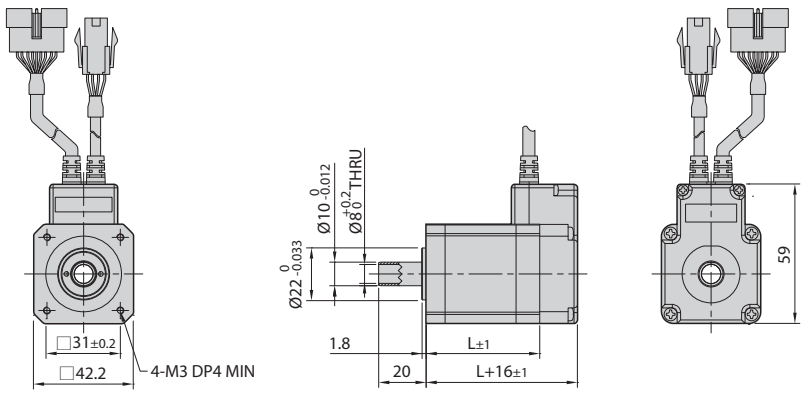
28 mm

Model name	Length (L)
HSE-P28SM	32.2
HSE-P28MM	45.2



35 mm

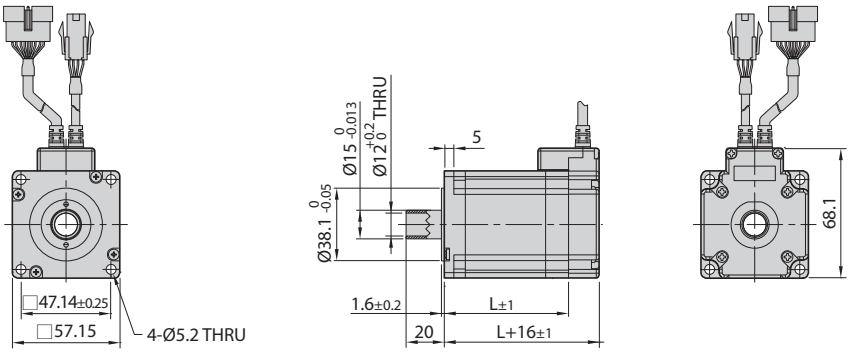
Model name	Length (L)
HSE-P35MM	37.3
HSE-P35LM	45.3



42 mm

Model name	Length (L)
HSE-P42S	34.4
HSE-P42L	48.4

Dimensions of Hollow Shaft Motor [mm]



56 *mm*

Model name	Length (L)
HSE-P56S	45.7
HSE-P56M	64.7

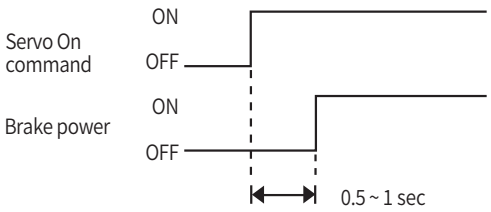
Specifications of Motor with Brake

Motor Model Number	Electromagnetic Brake					Motor Weight [kg]	Permissible Radial Load [N]				Permissible Axial Load [N]
	Type	Voltage Input [V]	Rated Current [A]	Power Consumption [W]	Static Friction Torque [N·m]		Distance from End of Shaft [mm]				
							3	8	13	18	
EzM2-42S-■-BK	Non-excitation run Type	24 V DC ± 10 %	0.2	5	0.2	0.55	22	26	33	46	Must be less than the motor weight
EzM2-42M-■-BK						0.62					
EzM2-42L-■-BK						0.69					
EzM2-42XL-■-BK						0.82					
EzM2-56S-■-BK			0.27	6.6	0.7	1.03	52	65	85	123	
EzM2-56M-■-BK						1.20					
EzM2-56L-■-BK						1.65					
EzM2-60S-■-BK						1.11	70	87	114	165	
EzM2-60M-■-BK						1.30					
EzM2-60L-■-BK						1.86					

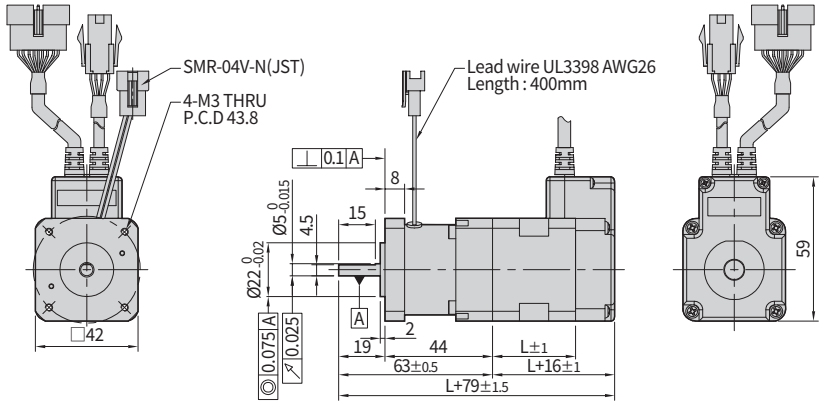
* The code of encoder resolution is marked in "■".
* Electromagnetic Brake cannot be used for braking. Position hold purpose only when power OFF.
* The motor weight refers to the total weight of the motor, including the integrated electromagnetic brake.
* Motor Model Number is combined model name of Motor and Brake.
* Motor specification and torque characteristic are same as Standard Motor.

* Brake Operation Timing Chart

Ezi-SERVO CC-Link IE TSN 4X controls Brake by Drive automatically. Please refer to timing chart on the right when Brake is controlled by the upper controller other than using Ezi-SERVO CC-Link IE TSN 4X Brake control. Otherwise, Drive might malfunction and loads might fall down. Also, please do not operate Brake during motor operation to prevent damage.

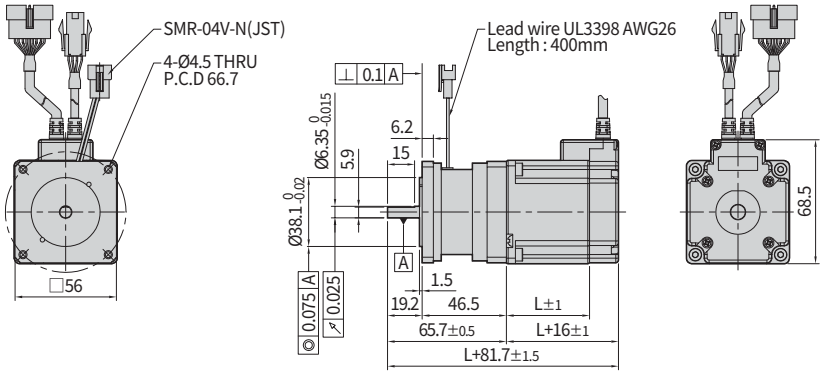


Dimensions of Motor with Brake [mm]



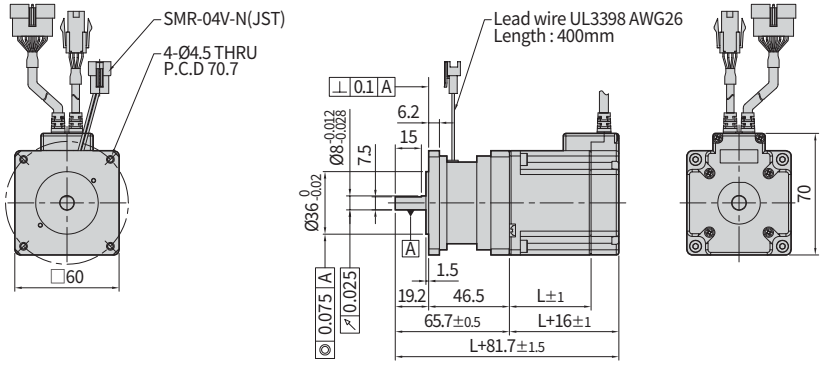
42 mm

Model name	Length (L)
EzM2-42S	34
EzM2-42M	40
EzM2-42L	48
EzM2-42XL	60



56 mm

Model name	Length (L)
EzM2-56S	46
EzM2-56M	55
EzM2-56L	80



60 mm

Model name	Length (L)
EzM2-60S	47
EzM2-60M	56
EzM2-60L	85

How to Read Specifications

Motor Model Number	① Maximum Holding Torque [N·m]	② Rotor Inertia Moment [kg·m²]	③ Backlash [arc-min]	④ Angle Transmission Error [arcmin]	⑤ Gear Ratio	⑥ Resolution (10,000 P/R Standard)	⑦ Permissible Torque [N·m]	⑧ Instantaneous Maximum Torque [N·m]	⑨ Permissible Speed Range [r/min]	⑩ Motor Weight [kg]	⑪ Permissible Radial Load (At Center of Axis) [N]	⑫ Permissible Axial Load [N]
EzM2-42S-■-PN3	0.57	35×10^{-7}	3	5	3	0.012 °	6	12	0 ~ 1000	0.76	240	270
EzM2-42S-■-PN5	0.95				5	0.0072 °	9	18	0 ~ 600		290	330
EzM2-42S-■-PN8	1.52				8	0.0045 °	9	18	0 ~ 375		340	410
EzM2-42S-■-PN10	1.90				10	0.0036 °	6	12	0 ~ 300		360	450
EzM2-42S-■-PN15	2.76		5	7	15	0.0024 °	6	12	0 ~ 200	0.91	410	540
EzM2-42S-■-PN25	4.60				25	0.00144 °	9	18	0 ~ 120		490	640
EzM2-42S-■-PN40	7.36				40	0.0009 °	9	18	0 ~ 75		570	640
EzM2-42S-■-PN50	9.00				50	0.00072 °	9	18	0 ~ 60		620	640

Description of Specification Items

No.	Item	Description
①	Maximum Holding Torque	This is the maximum torque that can be exerted through the gearbox when the motor is stopped. (Based on 100 % of stop current) Use the torque below the permissible torque of the gearbox.
②	Rotor Inertia Moment	It is the value of the moment of inertia of the motor.
③	Backlash	It is the gap between the gear and the gear, and it is the angle at which the gearbox shaft moves without external force when stopped.
④	Angle Transmission Error	This is the transmission characteristic of the gearbox, which means the difference between the theoretical rotation angle and the actual rotation angle of the output shaft.
⑤	Gear Ratio	It is the value obtained by dividing the number of output rotation by the number of input rotation.
⑥	Resolution	This is the angle at which the gearbox output shaft moves when the motor is driven by 1 pulse.
⑦	Permissible Torque	It refers to the maximum value of the torque that can be continuously applied to the output shaft of the gearbox during constant speed operation. (When the input rotation speed is 3,000 r/min and the lifetime of the motor becomes 20,000 hours)
⑧	Instantaneous Maximum Torque	This is the maximum torque allowed to the output shaft of the gearbox during acceleration/deceleration.
⑨	Permissible Speed Range	It is the range of rotation speed based on the output shaft of the gearbox.
⑩	Motor Weight	It is the sum of the weight of the gearbox and the motor.
⑪	Permissible Radial Load	It is the maximum value of the load applied in the direction perpendicular to the gearbox output shaft.
⑫	Permissible Axial Load	It is the maximum value of the load applied in the axial direction to the gearbox output shaft.

Specifications of Motor with Gearbox

42 mm

Motor Model Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m²]	Backlash [arcmin]	Angle Transmission Error [arcmin]	Gear Ratio	Resolution (10,000 P/R Standard)	Permissible Torque [N·m]	Instantaneous Maximum Torque [N·m]	Permissible Speed Range [r/min]	Motor Weight [kg]	Permissible Radial Load (At Center of Axis) [N]	Permissible Axial Load [N]
EzM2-42S-■-PN3	0.57	35×10^{-7}	3	5	3	0.012°	6	12	0~1000	0.76	240	270
EzM2-42S-■-PN5	0.95				5	0.0072°	9	18	0~600		290	330
EzM2-42S-■-PN8	1.52				8	0.0045°	9	18	0~375		340	410
EzM2-42S-■-PN10	1.90				10	0.0036°	6	12	0~300		360	450
EzM2-42S-■-PN15	2.76		5	7	15	0.0024°	6	12	0~200	0.91	410	540
EzM2-42S-■-PN25	4.60				25	0.00144°	9	18	0~120		490	640
EzM2-42S-■-PN40	7.36				40	0.0009°	9	18	0~75		570	640
EzM2-42S-■-PN50	9.00				50	0.00072°	9	18	0~60		620	640
EzM2-42M-■-PN3	0.85	54×10^{-7}	3	5	3	0.012°	6	12	0~1000	0.81	240	270
EzM2-42M-■-PN5	1.42				5	0.0072°	9	18	0~600		290	330
EzM2-42M-■-PN8	2.28				8	0.0045°	9	18	0~375		340	410
EzM2-42M-■-PN10	2.85				10	0.0036°	6	12	0~300		360	450
EzM2-42M-■-PN15	4.14		5	7	15	0.0024°	6	12	0~200	0.97	410	540
EzM2-42M-■-PN25	6.90				25	0.00144°	9	18	0~120		490	640
EzM2-42M-■-PN40	9.00				40	0.0009°	9	18	0~75		570	640
EzM2-42M-■-PN50	9.00				50	0.00072°	9	18	0~60		620	640
EzM2-42L-■-PN3	0.92	77×10^{-7}	3	5	3	0.012°	6	12	0~1000	0.89	240	270
EzM2-42L-■-PN5	1.54				5	0.0072°	9	18	0~600		290	330
EzM2-42L-■-PN8	2.47				8	0.0045°	9	18	0~375		340	410
EzM2-42L-■-PN10	3.09				10	0.0036°	6	12	0~300		360	450
EzM2-42L-■-PN15	4.49		5	7	15	0.0024°	6	12	0~200	1.04	410	540
EzM2-42L-■-PN25	7.49				25	0.00144°	9	18	0~120		490	640
EzM2-42L-■-PN40	9.00				40	0.0009°	9	18	0~75		570	640
EzM2-42L-■-PN50	9.00				50	0.00072°	9	18	0~60		620	640
EzM2-42XL-■-PN3	1.45	114×10^{-7}	3	5	3	0.012°	6	12	0~1000	1.03	240	270
EzM2-42XL-■-PN5	2.42				5	0.0072°	9	18	0~600		290	330
EzM2-42XL-■-PN8	3.87				8	0.0045°	9	18	0~375		340	410
EzM2-42XL-■-PN10	4.84				10	0.0036°	6	12	0~300		360	450
EzM2-42XL-■-PN15	6.00		5	7	15	0.0024°	6	12	0~200	1.18	410	540
EzM2-42XL-■-PN25	9.00				25	0.00144°	9	18	0~120		490	640
EzM2-42XL-■-PN40	9.00				40	0.0009°	9	18	0~75		570	640
EzM2-42XL-■-PN50	9.00				50	0.00072°	9	18	0~60		620	640

* The code of encoder resolution will be marked in "■"

Specifications of Motor with Gearbox

56 mm

Motor Model Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m²]	Backlash [arcmin]	Angle Transmission Error [arcmin]	Gear Ratio	Resolution (10,000 P/R Standard)	Permissible Torque [N·m]	Instantaneous Maximum Torque [N·m]	Permissible Speed Range [r/min]	Motor Weight [kg]	Permissible Radial Load (At Center of Axis) [N]	Permissible Axial Load [N]
EzM2-56S-■-PN3	1.1	180×10^{-7}	3	5	3	0.012°	18	35	0~1000	1.75	430	310
EzM2-56S-■-PN5	1.9				5	0.0072°	27	50	0~600		510	390
EzM2-56S-■-PN8	3.0				8	0.0045°	27	50	0~375		600	480
EzM2-56S-■-PN10	3.8				10	0.0036°	18	35	0~300		640	530
EzM2-56S-■-PN15	5.5				15	0.0024°	18	35	0~200	2.05	740	630
EzM2-56S-■-PN25	9.3				25	0.00144°	27	50	0~120		870	790
EzM2-56S-■-PN40	14.9				40	0.0009°	27	50	0~75		1000	970
EzM2-56S-■-PN50	18.6				50	0.00072°	27	50	0~60		1100	1100
EzM2-56M-■-PN3	2.0	280×10^{-7}	3	5	3	0.012°	18	35	0~1000	1.92	430	310
EzM2-56M-■-PN5	3.4				5	0.0072°	27	50	0~600		510	390
EzM2-56M-■-PN8	5.4				8	0.0045°	27	50	0~375		600	480
EzM2-56M-■-PN10	6.8				10	0.0036°	18	35	0~300		640	530
EzM2-56M-■-PN15	9.9				15	0.0024°	18	35	0~200	2.23	740	630
EzM2-56M-■-PN25	16.6				25	0.00144°	27	50	0~120		870	790
EzM2-56M-■-PN40	27.0				40	0.0009°	27	50	0~75		1000	970
EzM2-56M-■-PN50	27.0				50	0.00072°	27	50	0~60		1100	1100
EzM2-56L-■-PN3	4.0	520×10^{-7}	3	5	3	0.012°	18	35	0~1000	2.37	430	310
EzM2-56L-■-PN5	6.8				5	0.0072°	27	50	0~600		510	390
EzM2-56L-■-PN8	10.8				8	0.0045°	27	50	0~375		600	480
EzM2-56L-■-PN10	13.6				10	0.0036°	18	35	0~300		640	530
EzM2-56L-■-PN15	18.0				15	0.0024°	18	35	0~200	2.67	740	630
EzM2-56L-■-PN25	27.0				25	0.00144°	27	50	0~120		870	790
EzM2-56L-■-PN40	27.0				40	0.0009°	27	50	0~75		1000	970
EzM2-56L-■-PN50	27.0				50	0.00072°	27	50	0~60		1100	1100

* The code of encoder resolution will be marked in "■"

Specifications of Motor with Gearbox

60mm

Motor Model Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m²]	Backlash [arcmin]	Angle Transmission Error [arcmin]	Gear Ratio	Resolution (10,000 P/R Standard)	Permissible Torque [N·m]	Instantaneous Maximum Torque [N·m]	Permissible Speed Range [r/min]	Motor Weight [kg]	Permissible Radial Load (At Center of Axis) [N]	Permissible Axial Load [N]
EzM2-60S-■-PN3	1.5	240×10^{-7}	3	5	3	0.012°	18	35	0 ~ 1000	1.84	430	310
EzM2-60S-■-PN5	2.5				5	0.0072°	27	50	0 ~ 600		510	390
EzM2-60S-■-PN8	4.0				8	0.0045°	27	50	0 ~ 375		600	480
EzM2-60S-■-PN10	5.1				10	0.0036°	18	35	0 ~ 300		640	530
EzM2-60S-■-PN15	7.4				15	0.0024°	18	35	0 ~ 200	2.13	740	630
EzM2-60S-■-PN25	12.3				25	0.00144°	27	50	0 ~ 120		870	790
EzM2-60S-■-PN40	19.8				40	0.0009°	27	50	0 ~ 75		1000	970
EzM2-60S-■-PN50	24.7				50	0.00072°	27	50	0 ~ 60		1100	1100
EzM2-60M-■-PN3	2.6	490×10^{-7}	3	5	3	0.012°	18	35	0 ~ 1000	1.20	430	310
EzM2-60M-■-PN5	4.4				5	0.0072°	27	50	0 ~ 600		510	390
EzM2-60M-■-PN8	7.0				8	0.0045°	27	50	0 ~ 375		600	480
EzM2-60M-■-PN10	8.8				10	0.0036°	18	35	0 ~ 300		640	530
EzM2-60M-■-PN15	12.8				15	0.0024°	18	35	0 ~ 200	2.30	740	630
EzM2-60M-■-PN25	21.4				25	0.00144°	27	50	0 ~ 120		870	790
EzM2-60M-■-PN40	27.0				40	0.0009°	27	50	0 ~ 75		1000	970
EzM2-60M-■-PN50	27.0				50	0.00072°	27	50	0 ~ 60		1100	1100
EzM2-60L-■-PN3	5.2	690×10^{-7}	3	5	3	0.012°	18	35	0 ~ 1000	2.61	430	310
EzM2-60L-■-PN5	8.7				5	0.0072°	27	50	0 ~ 600		510	390
EzM2-60L-■-PN8	13.9				8	0.0045°	27	50	0 ~ 375		600	480
EzM2-60L-■-PN10	18.0				10	0.0036°	18	35	0 ~ 300		640	530
EzM2-60L-■-PN15	18.0				15	0.0024°	18	35	0 ~ 200	2.86	740	630
EzM2-60L-■-PN25	27.0				25	0.00144°	27	50	0 ~ 120		870	790
EzM2-60L-■-PN40	27.0				40	0.0009°	27	50	0 ~ 75		1000	970
EzM2-60L-■-PN50	27.0				50	0.00072°	27	50	0 ~ 60		1100	1100

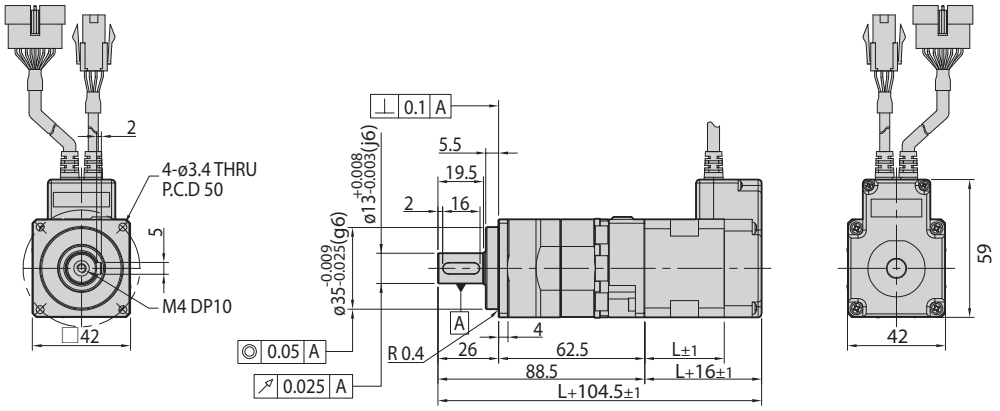
* The code of encoder resolution will be marked in "■"

Dimensions of Motor with Gearbox [mm]

42 mm

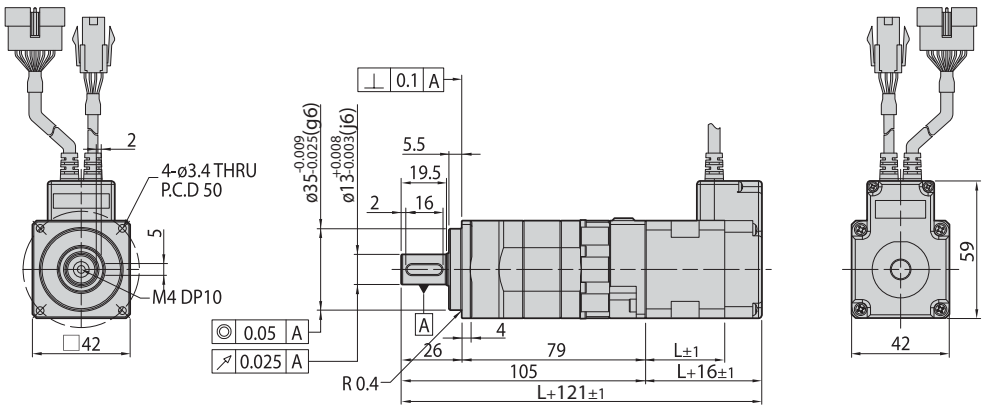
Motor	Stage	□Gear Ratio	L [mm]
EzM2-42S-■-PN□	Single Stage	3, 5, 8, 10	34
EzM2-42M-■-PN□		3, 5, 8, 10	40
EzM2-42L-■-PN□		3, 5, 8, 10	48
EzM2-42XL-■-PN□		3, 5, 8, 10	60

* The code of encoder resolution will be marked in "■"



Motor	Stage	□Gear Ratio	L [mm]
EzM2-42S-■-PN□	Double Stage	15, 25, 40, 50	34
EzM2-42M-■-PN□		15, 25, 40, 50	40
EzM2-42L-■-PN□		15, 25, 40, 50	48
EzM2-42XL-■-PN□		15, 25, 40, 50	60

* The code of encoder resolution will be marked in "■"

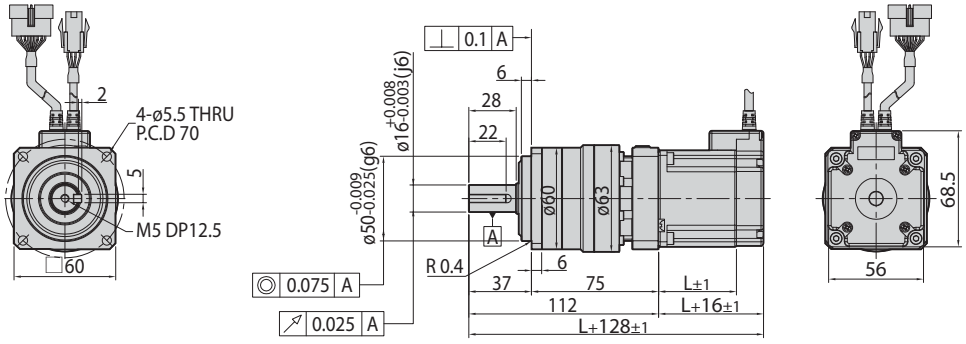


Dimensions of Motor with Gearbox [mm]

56mm

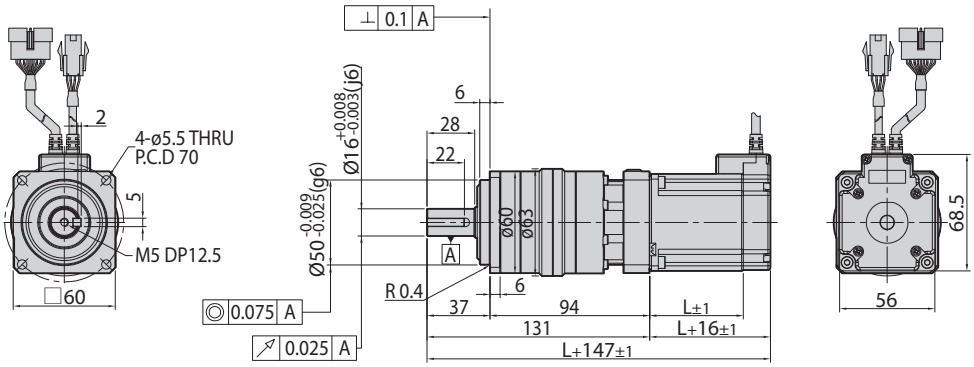
Motor	Stage	□Gear Ratio	L [mm]
EzM2-56S-■-PN□	Single Stage	3, 5, 8, 10	46
EzM2-56M-■-PN□		3, 5, 8, 10	55
EzM2-56L-■-PN□		3, 5, 8, 10	80

* The code of encoder resolution will be marked in "■"



Motor	Stage	□Gear Ratio	L [mm]
EzM2-56S-■-PN□	Double Stage	15, 25, 40, 50	46
EzM2-56M-■-PN□		15, 25, 40, 50	55
EzM2-56L-■-PN□		15, 25, 40, 50	80

* The code of encoder resolution will be marked in "■"

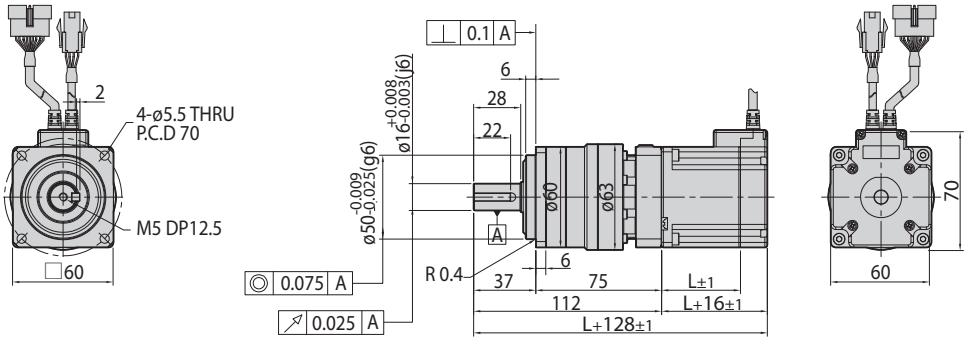


Dimensions of Motor with Gearbox [mm]

60 mm

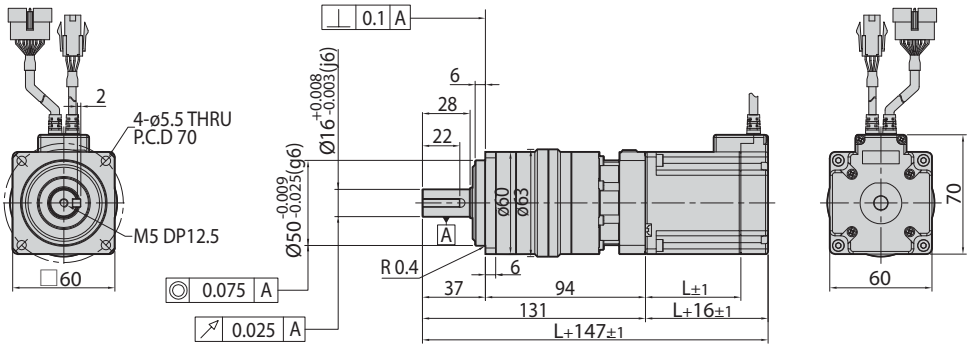
Motor	Stage	□Gear Ratio	L [mm]
EzM2-60S-■-PN□	Single Stage	3, 5, 8, 10	47
EzM2-60M-■-PN□		3, 5, 8, 10	56
EzM2-60L-■-PN□		3, 5, 8, 10	85

* The code of encoder resolution will be marked in "■"

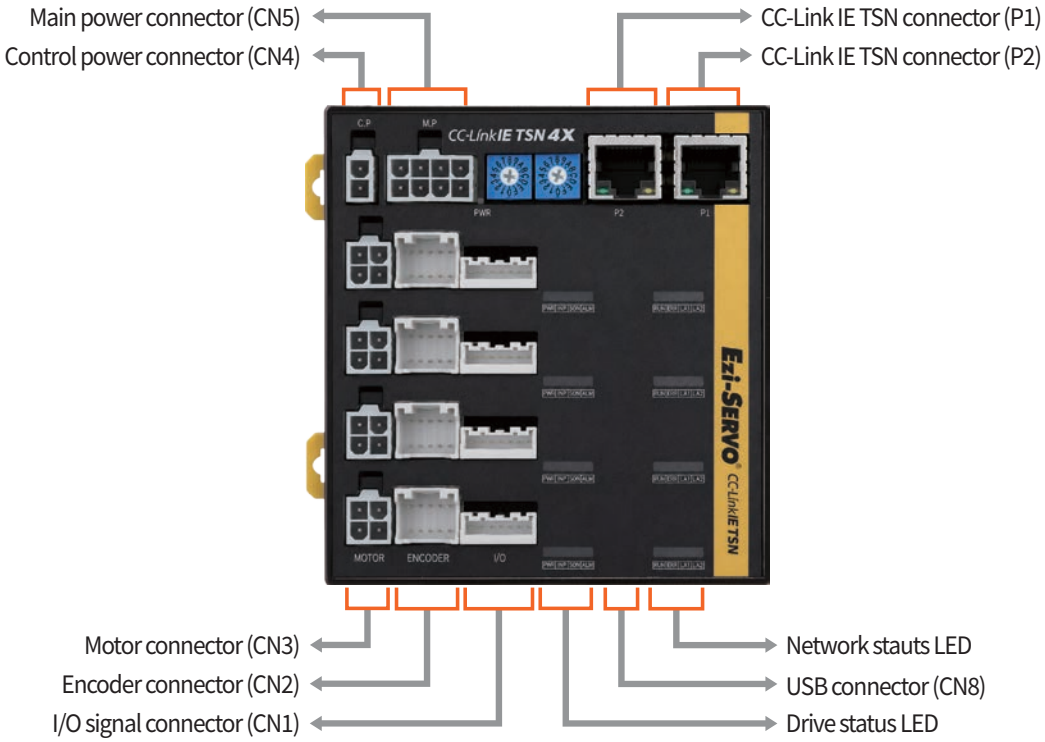


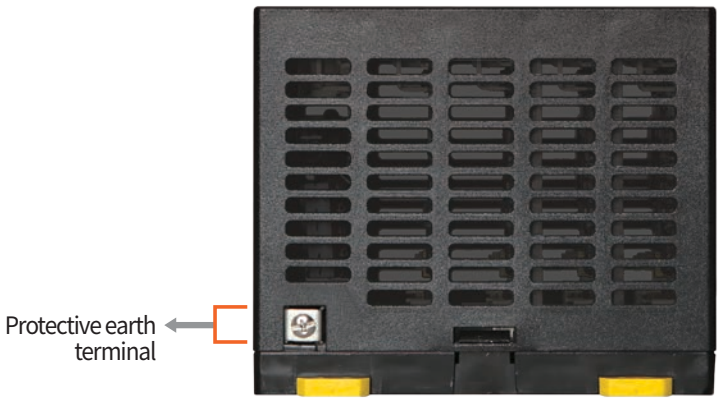
Motor	Stage	□Gear Ratio	L [mm]
EzM2-60S-■-PN□	Double Stage	15, 25, 40, 50	47
EzM2-60M-■-PN□		15, 25, 40, 50	56
EzM2-60L-■-PN□		15, 25, 40, 50	85

* The code of encoder resolution will be marked in "■"



Settings and Operation



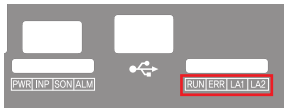


※ Basic configuration of 3X drive is the same as 4X and only difference is number of axis.

1. Network Status LED

LED indicates communication status of CC-Link IE TSN.

Indicator	Color	Status	Description
RUN	Green	OFF	Power off
		Single Flash	Not connected to master
		Double Flash	Pre-operational state
		Blinking	Safe-operational state
		Interval Off	Operational state



Indicator	Color	Status	Description
ERR	Red	OFF	No error or power off
		Blinking	Drive error
		Single Flash	CC-Link IE TSN communication error
		Double Flash	IP address conflict error

Indicator	Color	Status	Description
LINK1/ LINK2	Green	OFF	Link inactive
		ON	Link active

2. Drive Status LED

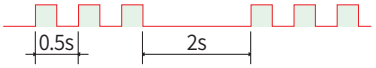
LED informs operation status of the drive.

Indicator	Color	Function	Description
PWR	Green	Power Input Indicator	Lights up when power is supplied.
INP	Yellow	Complete Positioning Motion	LED is turned on when Positioning error reaches within the preset pulse after the positioning is complete.
SON	Orange	Servo ON / OFF Indicator	Lights up when Servo is on; turns off when Servo is off.
ALM	Red	Alarm Indicator	Blinks repeatedly when an error occurs.

List of error types by the number of LED blinking

No.	Error Type	Causes
1	Over Current Error	The current through power devices in drive exceeds the limit. *1
2	Over Speed Error	The motor speed exceeds 3,000 r/min
3	Position Tracking Error	Position error value is greater than the reference value while the motor is running *2
4	Over Load Error	The motor is continuously operated more than 5 seconds under a load exceeding the Max. torque.
5	Over Temperature Error	Internal temperature of the drive exceeds 85 °C
6	Over Regenerative Voltage Error	Back-EMF is higher than limit value *3
7	Motor Connect Error	There is a problem with the connection between the drive and the motor
8	Encoder Connect Error	There is a problem with the connection between the drive and the encoder
9	Main Power Voltage Error	Main supply voltage is approximately below 18 V
10	In-Position Error	After operation is finished, position error larger than 1 pulse is continued for more than 3 seconds
12	ROM Error	Error occurs in parameter storage device (ROM)
15	Position Overflow Error	Position error value is greater than the reference value while the motor is stopped *2

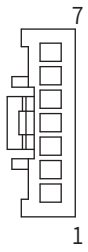
*1: Limit value depends on motor model. (Refer to the Manual)
*2: The default setting value is 180 °, and it can be changed by parameter. (Refer to the Manual)
*3: Voltage limit of Back-EMF depends on motor model. (Refer to the Manual)
※ Please refer to user Manual for the details of protection functions.



Alarm LED flash (e.g., Position tracking error)

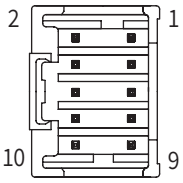
3. I/O Signal Connector (CN1)

No.	Function	I/O
1	EXT_24 V DC	Input
2	EXT_GND	Input
3	LIMIT+	Input
4	LIMIT-	Input
5	ORIGIN	Input
6	BRAKE+	Output
7	BRAKE-	Output



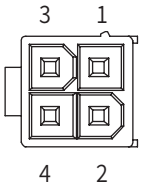
4. Encoder Connector (CN2)

No.	Function	I/O
1	A+	Input
2	A-	Input
3	B+	Input
4	B-	Input
5	Z+	Input
6	Z-	Input
7	5 V DC	Output
8	GND	Output
9	F.GND	----
10	F.GND	----



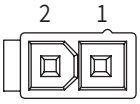
5. Motor Connector (CN3)

No.	Function	I/O
1	A Phase	Output
2	B Phase	Output
3	$\bar{A}$ Phase	Output
4	$\bar{B}$ Phase	Output



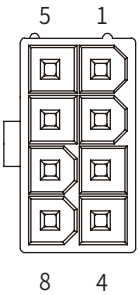
6. Control Power Connector (CN4)

No.	Function	I/O
1	24 V DC	Input
2	GND	Input



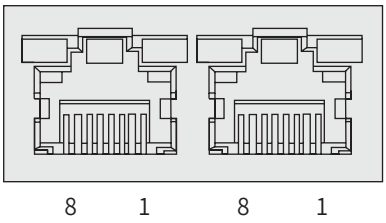
7. Main Power Connector (CN5)

No.	Function	I/O
1	24 V DC	Input
2	24 V DC	Input
3	24 V DC	Input
4	F.GND	----
5	GND	Input
6	GND	Input
7	GND	Input
8	F.GND	----

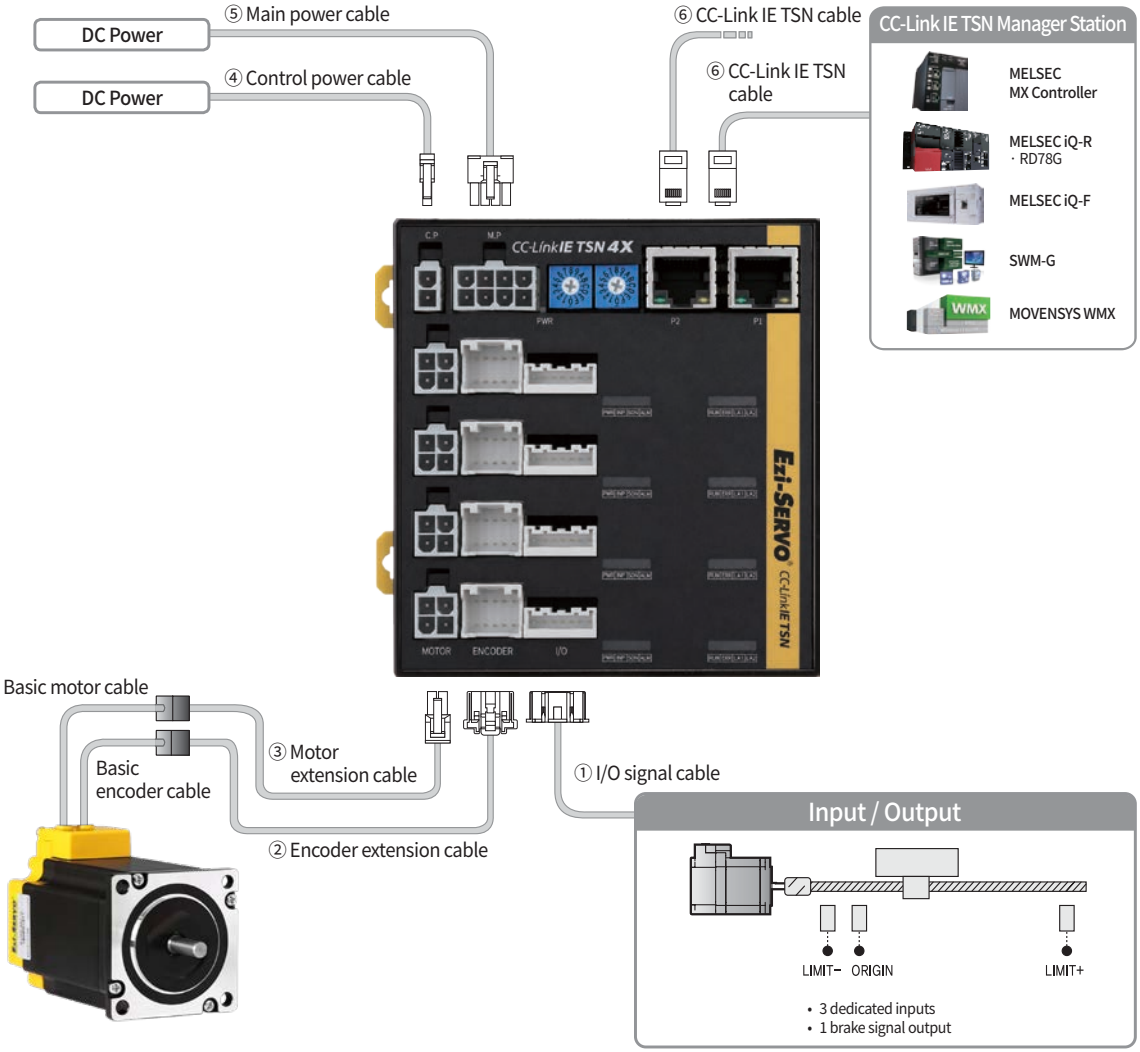


8. CC-Link IE TSN Connector (CN6, CN7)

No.	Function	No.	Function
1	TD+	6	RD-
2	TD-	7	----
3	RD+	8	----
4	----	Connector hood	F.GND
5	----		



System Configuration



Cable Type	Max. Cable Length	Remarks
① I/O Signal Cable	20 m	Options (Sold separately)
② Encoder Extension Cable	20 m	
③ Motor Extension Cable	20 m	
④ Control Power Cable	2 m	
⑤ Main Power Cable	2 m	
⑥ CC-Link IE TSN Cable	100 m	
Basic Encoder Cable	0.3 m (Basic length)	Basic cables are attached to motors.
Basic Motor Cable	0.3 m (Basic length)	

Basic configuration of 3X drive is the same as 4X and only difference is number of axis.

1. Accessories

Connectors

These are connector specifications for drive cabling.

Purpose		Item	Part Number	Manufacturer
Main Power (CN5)		Housing	5557-08R	MOLEX
		Terminal	5556T	
Control Power (CN4)		Housing	5557-02R	MOLEX
		Terminal	5556T	
Motor	Drive Side (CN3)	Housing	5557-04R	MOLEX
		Terminal	5556T	
	Motor Side	Housing	5557-04R	MOLEX
		Terminal	5556T	
Encoder	Drive Side (CN2)	Housing	51353-1000	MOLEX
		Terminal	56134-9000	
	Encoder Side	Housing	SMP-09V-NC	JST
		Terminal	SHF-001T-0.8BS	
I/O Signal (CN1)		Housing	PAP-07V-S	JST
		Terminal	SPHD-001T-P0.5	

The connectors above are supplied with the product. If you are using other parts, please make sure they meet the specifications.

2. Options

① I/O Signal Cable

These are the cables to connect Ezi-SERVO CC-Link IE TSN 4X drive and other input / output devices.

Purpose	Part Number	Length [m]	Cable Type	Remarks
Drive - I/O Device Connection	CECM-S-001F	1	Fixed Cable	Max. Cable Length: 20 m
	CECM-S-002F	2		
	CECM-S-003F	3		
	CECM-S-005F	5		
	CECM-S-001M	1	Flexible Cable	
	CECM-S-002M	2		
	CECM-S-003M	3		
	CECM-S-005M	5		

* If you need cables with length(in units of 1 m) not listed on the table, please contact FASTECH for more information.

② Encoder Extension Cable

These are the cables to connect Ezi-SERVO CC-Link IE TSN 4X drive and the encoder.

Purpose	Part Number	Length [m]	Cable Type	Remarks
Drive - Basic Encoder Cable Connection	CSVO-E-001F	1	Fixed Cable	Max. Cable Length: 20 m
	CSVO-E-002F	2		
	CSVO-E-003F	3		
	CSVO-E-005F	5		
	CSVO-E-001M	1	Flexible Cable	
	CSVO-E-002M	2		
	CSVO-E-003M	3		
	CSVO-E-005M	5		

* If you need cables with length(in units of 1 m) not listed on the table, please contact FASTECH for more information.

③ Motor Extension Cable

These are the cables to connect Ezi-SERVO CC-Link IE TSN 4X drive and the motor.

Purpose	Part Number	Length [m]	Cable Type	Remarks
Drive - Basic Motor Cable Connection	CSVO-M-001F	1	Fixed Cable	Max. Cable Length: 20 m
	CSVO-M-002F	2		
	CSVO-M-003F	3		
	CSVO-M-005F	5		
	CSVO-M-001M	1	Flexible Cable	
	CSVO-M-002M	2		
	CSVO-M-003M	3		
	CSVO-M-005M	5		

* If you need cables with length(in units of 1 m) not listed on the table, please contact FASTECH for more information.

④ Control Power Cable

These are the cables to connect Ezi-SERVO CC-Link IE TSN 4X drive and the control power.

Purpose	Part Number	Length [m]	Cable Type	Remarks
Drive - Control Power Connection	CSVO-P-001F	1	Fixed Cable	Max. Cable Length: 2 m
	CSVO-P-002F	2		
	CSVO-P-001M	1	Flexible Cable	
	CSVO-P-002M	2		

⑤ Main Power Cable

These are the cables to connect Ezi-SERVO CC-Link IE TSN 4X drive and the main power.

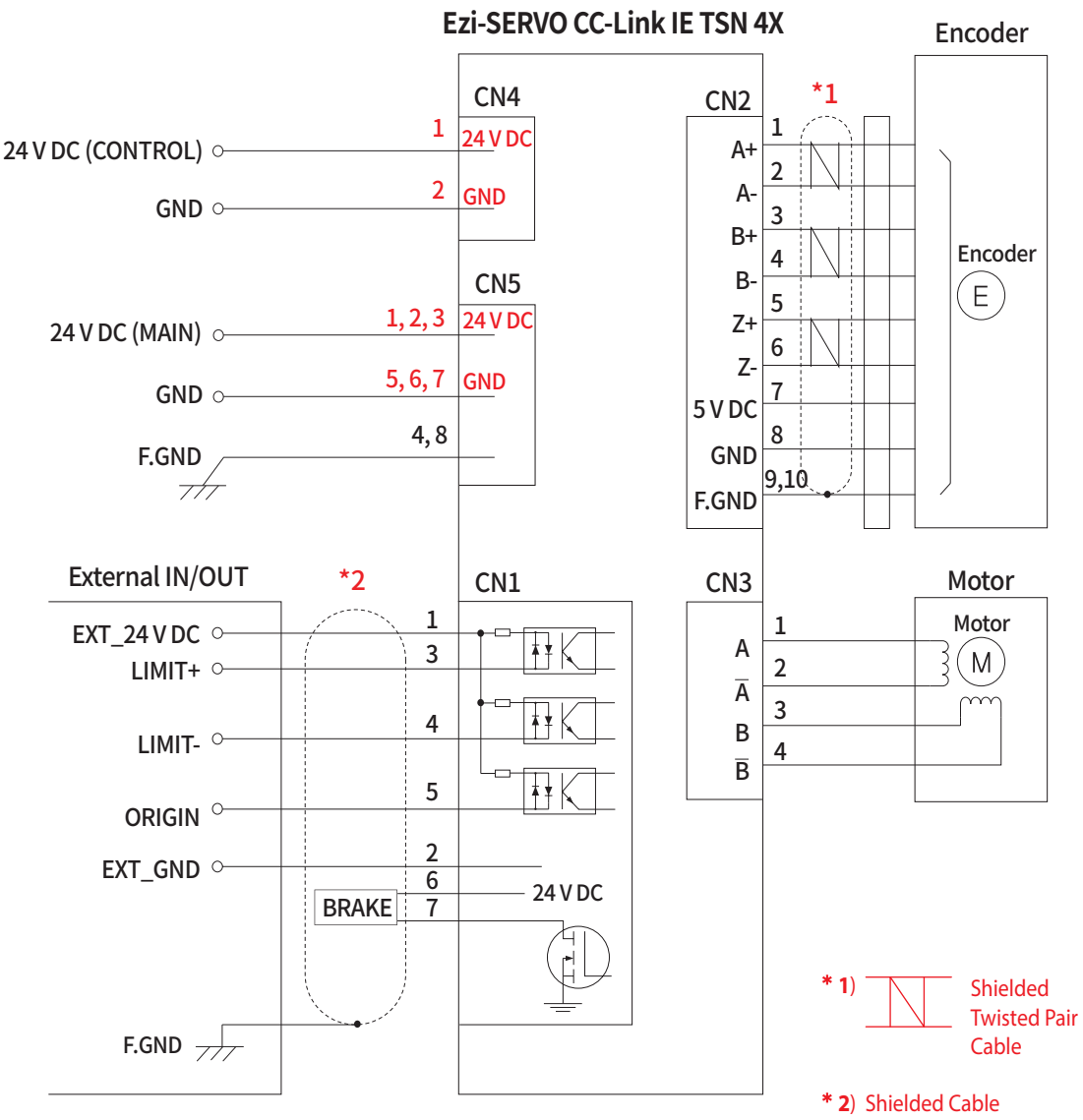
Purpose	Part Number	Length [m]	Cable Type	Remarks
Drive - Main Power Cable Connection	CECM-P-001F	1	Fixed Cable	Max. Cable Length: 2 m
	CECM-P-002F	2		
	CECM-P-001M	1	Flexible Cable	
	CECM-P-002M	2		

⑥ CC-Link IE TSN Cable

Purpose	Part Number	Length [m]	Remarks
CC-Link IE TSN Connection	CGNR-CT-001F	1	• STP(Shielded Twisted Pair) Cable • Category 5e or higher • Max. Cable Length: 100 m • Fixed Cable
	CGNR-CT-002F	2	
	CGNR-CT-003F	3	
	CGNR-CT-005F	5	

* If you need cables with length(in units of 1 m) not listed on the table, please contact FASTECH for more information.

External Wiring Diagram



※ When connecting the I/O cable between the drive and the master controller, be sure to turn off the power to both the master controller and the drive. Failure to do so may result in electric shock or product damage.

CAUTION

To ensure the safe and proper use of the products listed in this catalog, please be sure to read the user manual thoroughly before use.

FASTECH

Fast Accurate Smooth Motion

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※ Please note that the color and size of the products in this catalog may differ depending on the measurement method and the specifications can be changed without prior notice for quality improvement.

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