

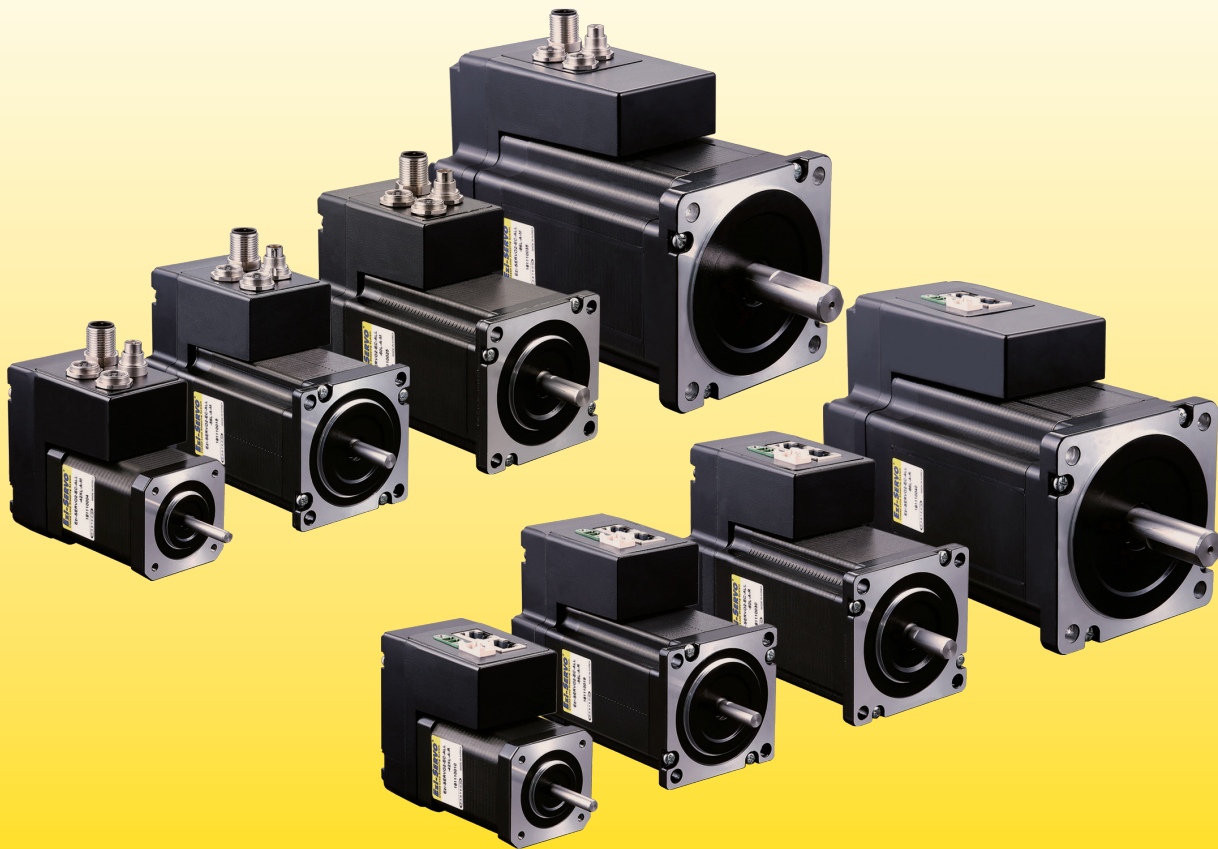
# Ezi-SERVO<sup>®</sup> II

## Closed Loop Stepping System

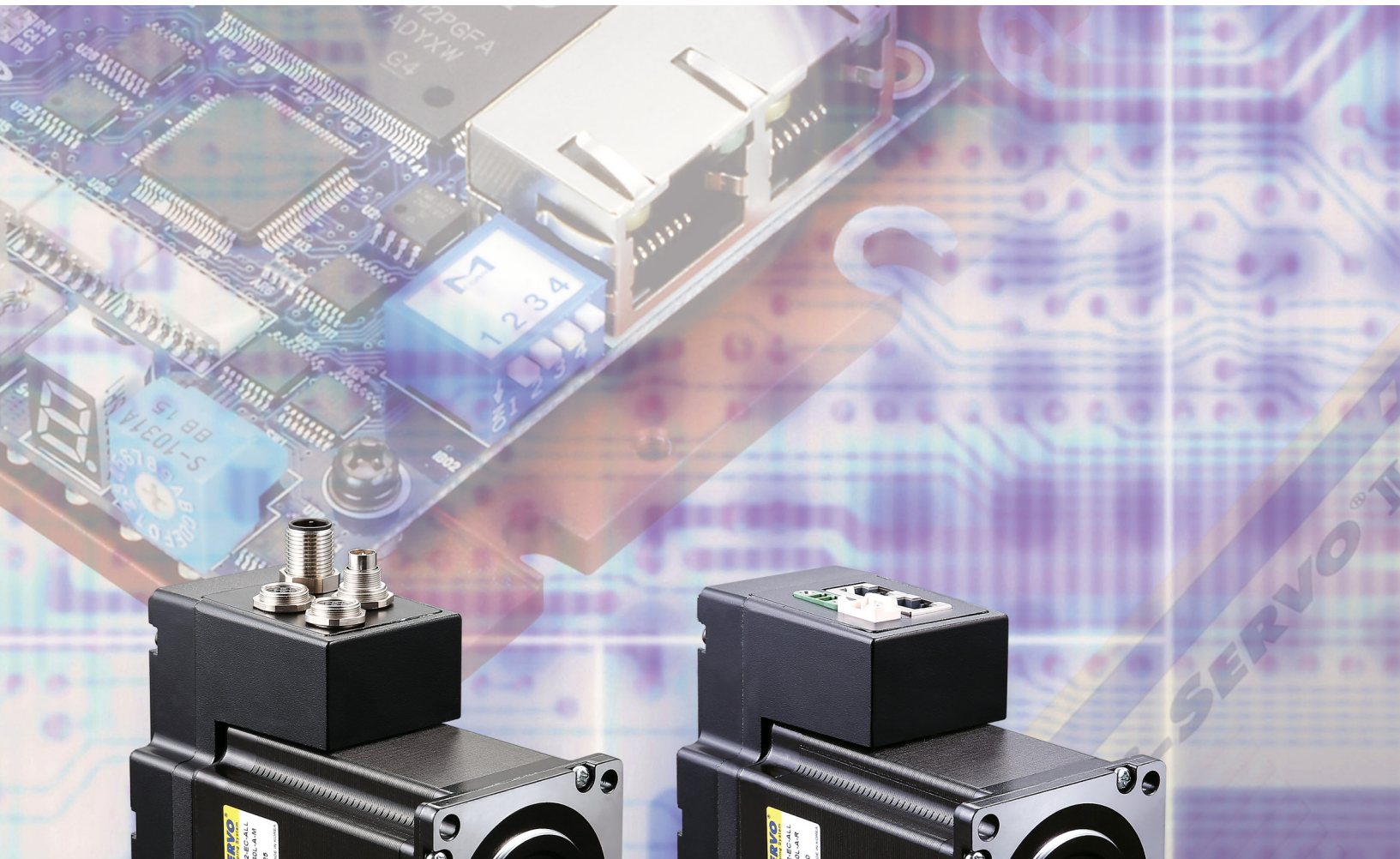
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- Motor + Encoder + Drive
- CiA 402 Drive Profile Support
- Closed Loop System
- No Gain Tuning
- No Hunting
- Heat Reduction
- Torque Improvement

EtherCAT<sup>®</sup>  ALL



*Fast, Accurate, Smooth Motion*



*Fast, Accurate, Smooth Motion*

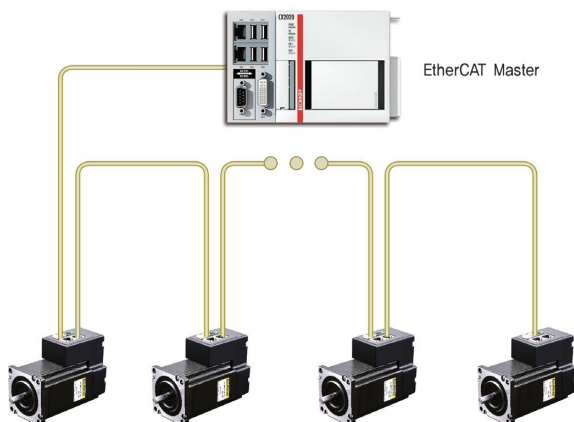
**Ezi-SERVO<sup>®</sup> II** EtherCAT<sup>®</sup> **ALL**  
Closed Loop Stepping System



## 1 EtherCAT Based Motion Control

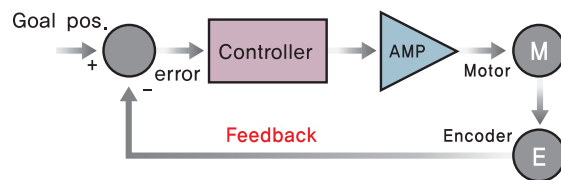
Ezi-SERVOII EtherCAT ALL is stepping motor control system using EtherCAT, high speed ethernet(100Mbps Full-Duplex) based fieldbus. Ezi-SERVOII EtherCAT ALL is EtherCAT slave module which support CAN application layer over EtherCAT (CoE). CiA 402 Drive Profile implemented.

Supported modes are Profile Position Mode, Homing Mode, Cyclic Synchronous Position Mode.



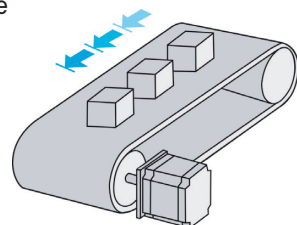
## 2 Closed Loop System

Ezi-SERVOII 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-SERVOII to update the current position every 50 micro seconds. It allows the Ezi-SERVOII 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-SERVOII automatically correct the position by encoder feedback.



## 3 No Gain Tuning

To ensure machine performance, smoothness, positional error and low servo noise, 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, especially if more that one axis are interdependent, Ezi-SERVOII employs the best characteristics of stepper, closed loop motion controls and algorithms to eliminate the need of tedious gain tuning required for conventional closed loop servo systems. This means that Ezi-SERVOII is optimized for the application and ready to work right out of the box. The Ezi-SERVOII system employs the unique characteristics of the closed loop stepping motor control, eliminating these cumbersome steps and giving the engineer a high performance servo system without wasting setup time. Ezi-SERVOII is especially well suited for low stiffness loads (for example, a belt and pulley system) that sometime require conventional servo systems to inertia match with the additional expensive and bulky gearbox. Ezi-SERVOII also performs exceptionally, even under heavy loads and high speeds.

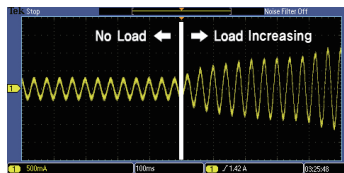
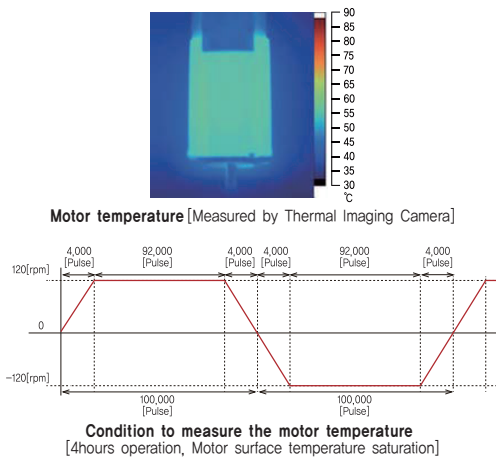


## 4 Heat Reduction / Energy Saving

(Motor Current Control according to load)

Ezi-SERVOII automatically controls motor current according to load.

Ezi-SERVOII 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.



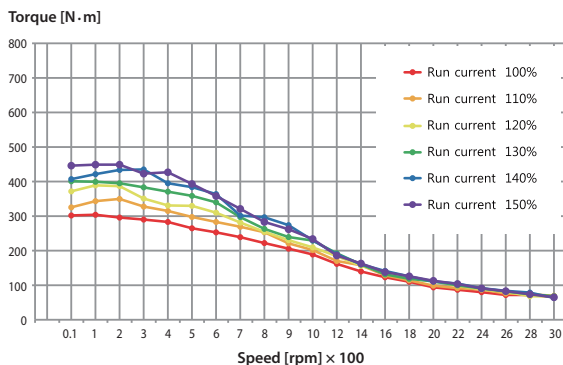
Example of the Motor Current Control according to load

## 5 Torque Improvement

(Motor Current Setting)

Ezi-SERVOII can increase the motor current up to 150% by setting the Run Current by parameter. Therefore acceleration and deceleration characteristics and torque characteristics at low speed can be increased.

Ezi-SERVOII can improve the torque in the low speed range by about 30%.

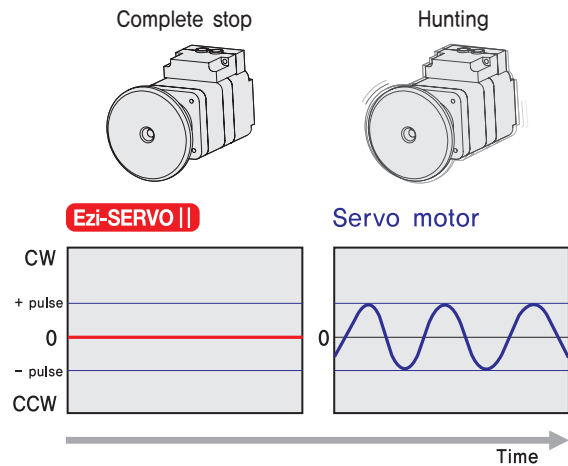


※ The torque at low speed is improved about 30%.

Measured Condition : Drive = Ezi-SERVO II-EC-ALL-42L

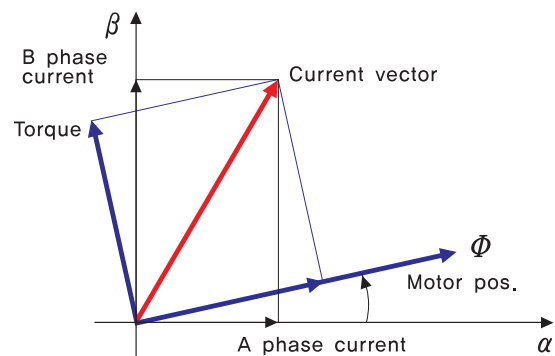
## 6 No Hunting

Traditional servo motor drives overshoot their position and try to correct by overshooting the opposite direction, especially in high gain applications. This is called null hunt and is especially prevalent in systems that the break away or static friction is significantly higher than the running friction. The cure is lowering the gain, which affects accuracy or using Ezi-SERVOII Motion Control System. Ezi-SERVOII utilizes the unique characteristics of stepping motors and locks itself into the desired target position, eliminating Null Hunt. This feature is especially useful in applications such as nanotech manufacturing, semiconductor fabrication, vision systems and ink jet printing in which system oscillation and vibration could be a problem.



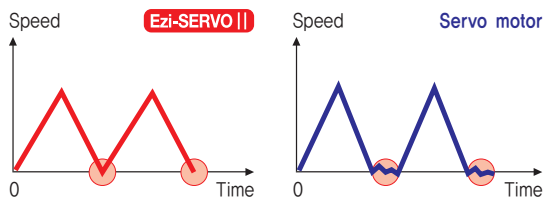
## 7 Smooth and Accurate

Ezi-SERVOII is a high-precision servo drive, using a high-resolution encoder with 10,000 pulses/revolution. Unlike a conventional Microstep drive, the on-board high performance MCU performs vector control and filtering, producing a smooth rotational control with minimum ripples.



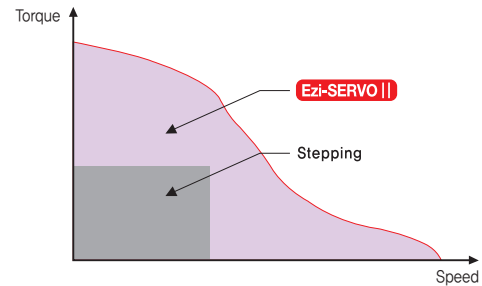
## 8 Fast Response

Similar to conventional stepping motors, Ezi-SERVO II instantly synchronizes with command pulses providing fast positional response. Ezi-SERVO II 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.



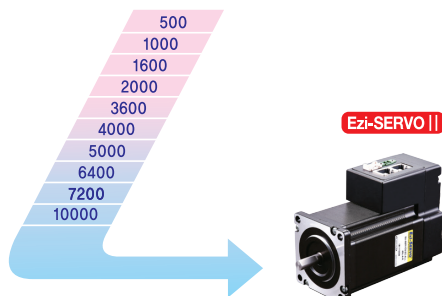
## 10 High Torque

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



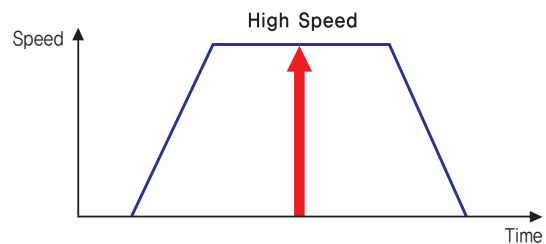
## 9 High Resolution

The unit of the position command can be divided precisely. (Max. 10,000 pulses/revolution)



## 11 High Speed

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



## Advantages over Open-Loop Control Stepping Drive

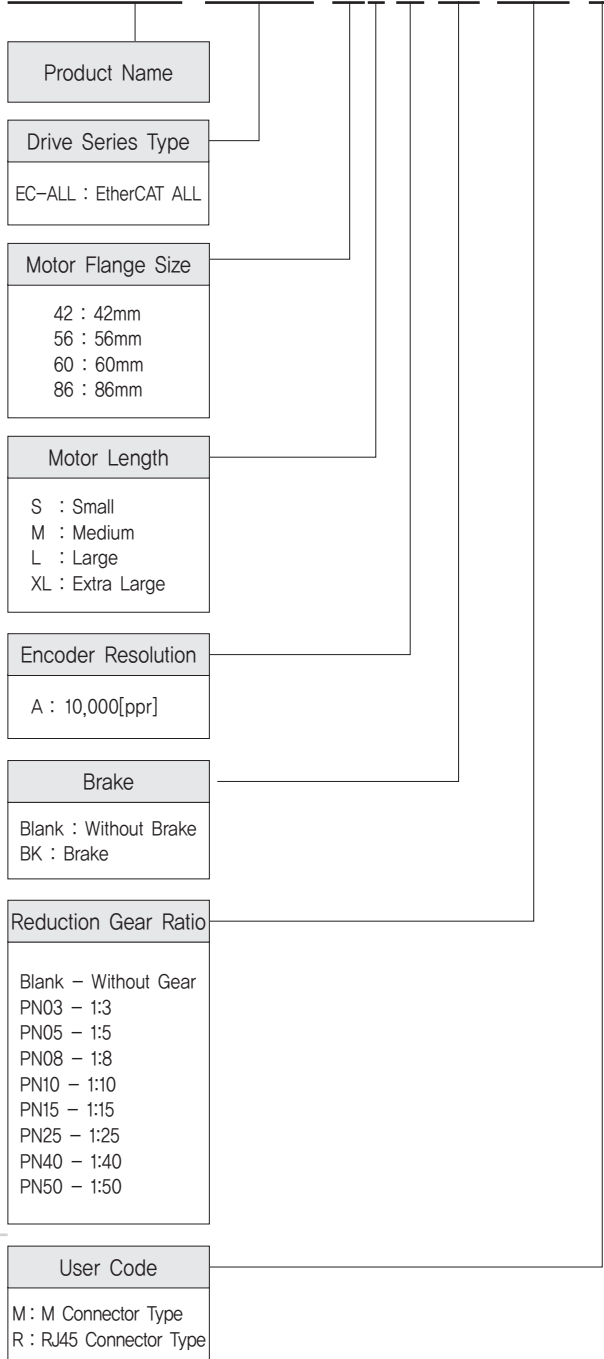
1. Reliable positioning without loss of synchronism.
2. Holding stable position and automatically recovering to the original position even after experiencing positioning error due to external forces, such as mechanical vibration or vertical positional holding.
3. Ezi-SERVO II utilizes 100% of the full range of rated motor torque, contrary to a conventional open-loop stepping driver 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-dependant current control, open-loop stepping drivers use a constant current control at all speed ranges without considering load variations.

## 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 ARM.
4. Continuous operation during rapid short-stroke movement due to instantaneous positioning.

## ● Ezi-SERVO II EtherCAT ALL Part Numbering

### Ezi-SERVO II-EC-ALL-56L-A-BK-PN05-□



## ● Standard Combination

Unit Part Number	Motor Model Number	Drive Model Number
Ezi-SERVO II-EC-ALL-42M-A-M	Motor & Drive Integrated	
Ezi-SERVO II-EC-ALL-42M-A-R		
Ezi-SERVO II-EC-ALL-42L-A-M		
Ezi-SERVO II-EC-ALL-42L-A-R		
Ezi-SERVO II-EC-ALL-42XL-A-M		
Ezi-SERVO II-EC-ALL-42XL-A-R		
Ezi-SERVO II-EC-ALL-56S-A-M		
Ezi-SERVO II-EC-ALL-56S-A-R		
Ezi-SERVO II-EC-ALL-56M-A-M		
Ezi-SERVO II-EC-ALL-56M-A-R		
Ezi-SERVO II-EC-ALL-56L-A-M		
Ezi-SERVO II-EC-ALL-56L-A-R		
Ezi-SERVO II-EC-ALL-60S-A-M		
Ezi-SERVO II-EC-ALL-60S-A-R		
Ezi-SERVO II-EC-ALL-60M-A-M		
Ezi-SERVO II-EC-ALL-60M-A-R		
Ezi-SERVO II-EC-ALL-60L-A-M		
Ezi-SERVO II-EC-ALL-60L-A-R		
Ezi-SERVO II-EC-ALL-86M-A-M		
Ezi-SERVO II-EC-ALL-86M-A-R		
Ezi-SERVO II-EC-ALL-86L-A-M		
Ezi-SERVO II-EC-ALL-86L-A-R		
Ezi-SERVO II-EC-ALL-86XL-A-M		
Ezi-SERVO II-EC-ALL-86XL-A-R		

## ● Combination with Brake

Unit Part Number	Motor Model Number	Drive Model Number
Ezi-SERVO II -EC-ALL-42M-A-BK-M	Motor & Drive Integrated	
Ezi-SERVO II -EC-ALL-42M-A-BK-R		
Ezi-SERVO II -EC-ALL-42L-A-BK-M		
Ezi-SERVO II -EC-ALL-42L-A-BK-R		
Ezi-SERVO II -EC-ALL-42XL-A-BK-M		
Ezi-SERVO II -EC-ALL-42XL-A-BK-R		
Ezi-SERVO II -EC-ALL-56S-A-BK-M		
Ezi-SERVO II -EC-ALL-56S-A-BK-R		
Ezi-SERVO II -EC-ALL-56M-A-BK-M		
Ezi-SERVO II -EC-ALL-56M-A-BK-R		
Ezi-SERVO II -EC-ALL-56L-A-BK-M		
Ezi-SERVO II -EC-ALL-56L-A-BK-R		
Ezi-SERVO II -EC-ALL-60S-A-BK-M		
Ezi-SERVO II -EC-ALL-60S-A-BK-R		
Ezi-SERVO II -EC-ALL-60M-A-BK-M		
Ezi-SERVO II -EC-ALL-60M-A-BK-R		
Ezi-SERVO II -EC-ALL-60L-A-BK-M		
Ezi-SERVO II -EC-ALL-60L-A-BK-R		
Ezi-SERVO II -EC-ALL-86M-A-BK-M		
Ezi-SERVO II -EC-ALL-86M-A-BK-R		
Ezi-SERVO II -EC-ALL-86L-A-BK-M		
Ezi-SERVO II -EC-ALL-86L-A-BK-R		
Ezi-SERVO II -EC-ALL-86XL-A-BK-M		
Ezi-SERVO II -EC-ALL-86XL-A-BK-R		

## ● Combination with Gearbox

Unit Part Number	Motor Model Number	Drive Model Number	Reduction gear ratio
Ezi-SERVO II -EC-ALL-42M-A-PN3-M	Motor & Drive Integrated		1:3
Ezi-SERVO II -EC-ALL-42M-A-PN3-R			
Ezi-SERVO II -EC-ALL-42M-A-PN5-M			1:5
Ezi-SERVO II -EC-ALL-42M-A-PN5-R			
Ezi-SERVO II -EC-ALL-42M-A-PN8-M			1:8
Ezi-SERVO II -EC-ALL-42M-A-PN8-R			
Ezi-SERVO II -EC-ALL-42M-A-PN10-M			1:10
Ezi-SERVO II -EC-ALL-42M-A-PN10-R			
Ezi-SERVO II -EC-ALL-42M-A-PN15-M			1:15
Ezi-SERVO II -EC-ALL-42M-A-PN15-R			
Ezi-SERVO II -EC-ALL-42M-A-PN25-M			1:25
Ezi-SERVO II -EC-ALL-42M-A-PN25-R			
Ezi-SERVO II -EC-ALL-42M-A-PN40-M			1:40
Ezi-SERVO II -EC-ALL-42M-A-PN40-R			
Ezi-SERVO II -EC-ALL-42M-A-PN50-M			1:50
Ezi-SERVO II -EC-ALL-42M-A-PN50-R			
Ezi-SERVO II -EC-ALL-42L-A-PN3-M			1:3
Ezi-SERVO II -EC-ALL-42L-A-PN3-R			
Ezi-SERVO II -EC-ALL-42L-A-PN5-M			1:5
Ezi-SERVO II -EC-ALL-42L-A-PN5-R			
Ezi-SERVO II -EC-ALL-42L-A-PN8-M			1:8
Ezi-SERVO II -EC-ALL-42L-A-PN8-R			
Ezi-SERVO II -EC-ALL-42L-A-PN10-M			1:10
Ezi-SERVO II -EC-ALL-42L-A-PN10-R			
Ezi-SERVO II -EC-ALL-42L-A-PN15-M			1:15
Ezi-SERVO II -EC-ALL-42L-A-PN15-R			
Ezi-SERVO II -EC-ALL-42L-A-PN25-M			1:25
Ezi-SERVO II -EC-ALL-42L-A-PN25-R			
Ezi-SERVO II -EC-ALL-42L-A-PN40-M			1:40
Ezi-SERVO II -EC-ALL-42L-A-PN40-R			
Ezi-SERVO II -EC-ALL-42L-A-PN50-M	1:50		
Ezi-SERVO II -EC-ALL-42L-A-PN50-R			

## ● Combination with Gearbox

Unit Part Number	Motor Model Number	Drive Model Number	Reduction gear ratio
Ezi-SERVO II -EC-ALL-42XL-A-PN3-M	Motor & Drive Integrated		1:3
Ezi-SERVO II -EC-ALL-42XL-A-PN3-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN5-M			1:5
Ezi-SERVO II -EC-ALL-42XL-A-PN5-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN8-M			1:8
Ezi-SERVO II -EC-ALL-42XL-A-PN8-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN10-M			1:10
Ezi-SERVO II -EC-ALL-42XL-A-PN10-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN15-M			1:15
Ezi-SERVO II -EC-ALL-42XL-A-PN15-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN25-M			1:25
Ezi-SERVO II -EC-ALL-42XL-A-PN25-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN40-M			1:40
Ezi-SERVO II -EC-ALL-42XL-A-PN40-R			
Ezi-SERVO II -EC-ALL-42XL-A-PN50-M			1:50
Ezi-SERVO II -EC-ALL-42XL-A-PN50-R			
Ezi-SERVO II -EC-ALL-56S-A-PN3-M			1:3
Ezi-SERVO II -EC-ALL-56S-A-PN3-R			
Ezi-SERVO II -EC-ALL-56S-A-PN5-M			1:5
Ezi-SERVO II -EC-ALL-56S-A-PN5-R			
Ezi-SERVO II -EC-ALL-56S-A-PN8-M			1:8
Ezi-SERVO II -EC-ALL-56S-A-PN8-R			
Ezi-SERVO II -EC-ALL-56S-A-PN10-M			1:10
Ezi-SERVO II -EC-ALL-56S-A-PN10-R			
Ezi-SERVO II -EC-ALL-56S-A-PN15-M			1:15
Ezi-SERVO II -EC-ALL-56S-A-PN15-R			
Ezi-SERVO II -EC-ALL-56S-A-PN25-M			1:25
Ezi-SERVO II -EC-ALL-56S-A-PN25-R			
Ezi-SERVO II -EC-ALL-56S-A-PN40-M			1:40
Ezi-SERVO II -EC-ALL-56S-A-PN40-R			
Ezi-SERVO II -EC-ALL-56S-A-PN50-M	1:50		
Ezi-SERVO II -EC-ALL-56S-A-PN50-R			
Ezi-SERVO II -EC-ALL-56M-A-PN3-M	1:3		
Ezi-SERVO II -EC-ALL-56M-A-PN3-R			
Ezi-SERVO II -EC-ALL-56M-A-PN5-M	1:5		
Ezi-SERVO II -EC-ALL-56M-A-PN5-R			
Ezi-SERVO II -EC-ALL-56M-A-PN8-M	1:8		
Ezi-SERVO II -EC-ALL-56M-A-PN8-R			
Ezi-SERVO II -EC-ALL-56M-A-PN10-M	1:10		
Ezi-SERVO II -EC-ALL-56M-A-PN10-R			
Ezi-SERVO II -EC-ALL-56M-A-PN15-M	1:15		
Ezi-SERVO II -EC-ALL-56M-A-PN15-R			
Ezi-SERVO II -EC-ALL-56M-A-PN25-M	1:25		
Ezi-SERVO II -EC-ALL-56M-A-PN25-R			
Ezi-SERVO II -EC-ALL-56M-A-PN40-M	1:40		
Ezi-SERVO II -EC-ALL-56M-A-PN40-R			
Ezi-SERVO II -EC-ALL-56M-A-PN50-M	1:50		
Ezi-SERVO II -EC-ALL-56M-A-PN50-R			
Ezi-SERVO II -EC-ALL-56L-A-PN3-M	1:3		
Ezi-SERVO II -EC-ALL-56L-A-PN3-R			
Ezi-SERVO II -EC-ALL-56L-A-PN5-M	1:5		
Ezi-SERVO II -EC-ALL-56L-A-PN5-R			
Ezi-SERVO II -EC-ALL-56L-A-PN8-M	1:8		
Ezi-SERVO II -EC-ALL-56L-A-PN8-R			
Ezi-SERVO II -EC-ALL-56L-A-PN10-M	1:10		
Ezi-SERVO II -EC-ALL-56L-A-PN10-R			
Ezi-SERVO II -EC-ALL-56L-A-PN15-M	1:15		
Ezi-SERVO II -EC-ALL-56L-A-PN15-R			
Ezi-SERVO II -EC-ALL-56L-A-PN25-M	1:25		
Ezi-SERVO II -EC-ALL-56L-A-PN25-R			
Ezi-SERVO II -EC-ALL-56L-A-PN40-M	1:40		
Ezi-SERVO II -EC-ALL-56L-A-PN40-R			
Ezi-SERVO II -EC-ALL-56L-A-PN50-M	1:50		
Ezi-SERVO II -EC-ALL-56L-A-PN50-R			

# ● Combination with Gearbox

FASTECH Ezi-SERVOII EtherCAT ALL

Unit Part Number	Motor Model Number	Drive Model Number	Reduction gear ratio
Ezi-SERVO II-EC-ALL-60S-A-PN3-M	Motor & Drive Integrated		1:3
Ezi-SERVO II-EC-ALL-60S-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-60S-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-60S-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-60S-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-60S-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-60S-A-PN10-M			1:10
Ezi-SERVO II-EC-ALL-60S-A-PN10-R			1:10
Ezi-SERVO II-EC-ALL-60S-A-PN15-M			1:15
Ezi-SERVO II-EC-ALL-60S-A-PN15-R			1:15
Ezi-SERVO II-EC-ALL-60S-A-PN25-M			1:25
Ezi-SERVO II-EC-ALL-60S-A-PN25-R			1:25
Ezi-SERVO II-EC-ALL-60S-A-PN40-M			1:40
Ezi-SERVO II-EC-ALL-60S-A-PN40-R			1:40
Ezi-SERVO II-EC-ALL-60S-A-PN50-M			1:50
Ezi-SERVO II-EC-ALL-60S-A-PN50-R			1:50
Ezi-SERVO II-EC-ALL-60M-A-PN3-M			1:3
Ezi-SERVO II-EC-ALL-60M-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-60M-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-60M-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-60M-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-60M-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-60M-A-PN10-M			1:10
Ezi-SERVO II-EC-ALL-60M-A-PN10-R			1:10
Ezi-SERVO II-EC-ALL-60M-A-PN15-M			1:15
Ezi-SERVO II-EC-ALL-60M-A-PN15-R			1:15
Ezi-SERVO II-EC-ALL-60M-A-PN25-M			1:25
Ezi-SERVO II-EC-ALL-60M-A-PN25-R			1:25
Ezi-SERVO II-EC-ALL-60M-A-PN40-M			1:40
Ezi-SERVO II-EC-ALL-60M-A-PN40-R			1:40
Ezi-SERVO II-EC-ALL-60M-A-PN50-M			1:50
Ezi-SERVO II-EC-ALL-60M-A-PN50-R			1:50
Ezi-SERVO II-EC-ALL-60L-A-PN3-M			1:3
Ezi-SERVO II-EC-ALL-60L-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-60L-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-60L-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-60L-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-60L-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-60L-A-PN10-M			1:10
Ezi-SERVO II-EC-ALL-60L-A-PN10-R			1:10
Ezi-SERVO II-EC-ALL-60L-A-PN15-M			1:15
Ezi-SERVO II-EC-ALL-60L-A-PN15-R			1:15
Ezi-SERVO II-EC-ALL-60L-A-PN25-M			1:25
Ezi-SERVO II-EC-ALL-60L-A-PN25-R			1:25
Ezi-SERVO II-EC-ALL-60L-A-PN40-M			1:40
Ezi-SERVO II-EC-ALL-60L-A-PN40-R			1:40
Ezi-SERVO II-EC-ALL-60L-A-PN50-M			1:50
Ezi-SERVO II-EC-ALL-60L-A-PN50-R			1:50
Ezi-SERVO II-EC-ALL-86M-A-PN3-M			1:3
Ezi-SERVO II-EC-ALL-86M-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-86M-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-86M-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-86M-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-86M-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-86M-A-PN10-M	1:10		
Ezi-SERVO II-EC-ALL-86M-A-PN10-R	1:10		
Ezi-SERVO II-EC-ALL-86M-A-PN15-M	1:15		
Ezi-SERVO II-EC-ALL-86M-A-PN15-R	1:15		
Ezi-SERVO II-EC-ALL-86M-A-PN25-M	1:25		
Ezi-SERVO II-EC-ALL-86M-A-PN25-R	1:25		
Ezi-SERVO II-EC-ALL-86M-A-PN40-M	1:40		
Ezi-SERVO II-EC-ALL-86M-A-PN40-R	1:40		
Ezi-SERVO II-EC-ALL-86M-A-PN50-M	1:50		
Ezi-SERVO II-EC-ALL-86M-A-PN50-R	1:50		

Unit Part Number	Motor Model Number	Drive Model Number	Reduction gear ratio
Ezi-SERVO II-EC-ALL-86L-A-PN3-M	Motor & Drive Integrated		1:3
Ezi-SERVO II-EC-ALL-86L-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-86L-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-86L-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-86L-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-86L-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-86L-A-PN10-M			1:10
Ezi-SERVO II-EC-ALL-86L-A-PN10-R			1:10
Ezi-SERVO II-EC-ALL-86L-A-PN15-M			1:15
Ezi-SERVO II-EC-ALL-86L-A-PN15-R			1:15
Ezi-SERVO II-EC-ALL-86L-A-PN25-M			1:25
Ezi-SERVO II-EC-ALL-86L-A-PN25-R			1:25
Ezi-SERVO II-EC-ALL-86L-A-PN40-M			1:40
Ezi-SERVO II-EC-ALL-86L-A-PN40-R			1:40
Ezi-SERVO II-EC-ALL-86L-A-PN50-M			1:50
Ezi-SERVO II-EC-ALL-86L-A-PN50-R			1:50
Ezi-SERVO II-EC-ALL-86XL-A-PN3-M			1:3
Ezi-SERVO II-EC-ALL-86XL-A-PN3-R			1:3
Ezi-SERVO II-EC-ALL-86XL-A-PN5-M			1:5
Ezi-SERVO II-EC-ALL-86XL-A-PN5-R			1:5
Ezi-SERVO II-EC-ALL-86XL-A-PN8-M			1:8
Ezi-SERVO II-EC-ALL-86XL-A-PN8-R			1:8
Ezi-SERVO II-EC-ALL-86XL-A-PN10-M			1:10
Ezi-SERVO II-EC-ALL-86XL-A-PN10-R			1:10
Ezi-SERVO II-EC-ALL-86XL-A-PN15-M			1:15
Ezi-SERVO II-EC-ALL-86XL-A-PN15-R			1:15
Ezi-SERVO II-EC-ALL-86XL-A-PN25-M			1:25
Ezi-SERVO II-EC-ALL-86XL-A-PN25-R			1:25
Ezi-SERVO II-EC-ALL-86XL-A-PN40-M			1:40
Ezi-SERVO II-EC-ALL-86XL-A-PN40-R			1:40
Ezi-SERVO II-EC-ALL-86XL-A-PN50-M	1:50		
Ezi-SERVO II-EC-ALL-86XL-A-PN50-R	1:50		



## ● Specifications of Drive

Driver Model		Ezi-SERVOII-EC-ALL -42 series	Ezi-SERVOII-EC-ALL -56 series	Ezi-SERVOII-EC-ALL -60 series	Ezi-SERVOII-EC-ALL -86 series
Input Voltage		24VDC ±10%			40~70VDC
Control Method		Closed loop control with 32bit ARM			
Current Consumption		Max 500mA (Except motor current)			
Operating Condition	Ambient Temperature	<ul style="list-style-type: none"> <li>· In Use: 0~50°C</li> <li>· In Storage: -20~70°C</li> </ul>			
	Humidity	<ul style="list-style-type: none"> <li>· In Use: 35~85% RH (Non-Condensing)</li> <li>· In Storage: 10~90% RH (Non-Condensing)</li> </ul>			
	Vib. Resist.	0.5g			
Function	Rotation Speed	0~3,000 [rpm]			
	Resolution [ppr]	10,000/Rev. Encoder model: 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 (Selectable by parameter)			
	Protection Functions	Over Current Error, Over Speed Error, Position Tracking Error, Over Load Error, Over Temperature Error, Over Regenerated Voltage Error, Motor Connect Error, Encoder Connect Error, In-Position Error, ROM Error, Position Overflow Error			
EtherCAT	Supported Protocol	CoE (CiA402 Drive Profile), FoE (Firmware Download)			
	Supported Mode	Profile Position Mode, Homing Mode, Cyclic Synchronous Position Mode			
	Synchronization	Free Run, SM Event, DC SYNC Event			
I/O Signal	Input Signals	3 dedicated inputs (LIMIT+, LIMIT-, ORIGIN), 3 user inputs (Photocoupler Input)			
	Output Signals	2 user outputs (Photocoupler Output), Brake			

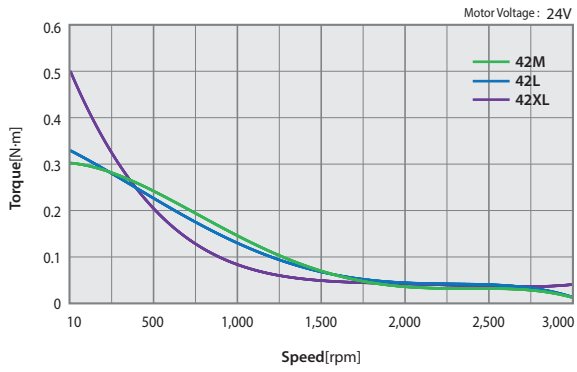
## ● Specifications of Motor

MODEL		Ezi-SERVOII-EC-ALL -42 series			Ezi-SERVOII-EC-ALL -56 series			
		UNIT	42M	42L	42XL	56S	56M	56L
DRIVE METHOD	-	BI-POLAR						
NUMBER OF PHASES	-	2	2	2	2	2	2	
VOLTAGE	VDC	4,32	4,56	7,2	1,56	1,62	2,64	
CURRENT per PHASE	A	1,2	1,2	1,2	3,0	3,0	3,0	
RESISTANCE per PHASE	Ohm	3,6	3,8	6,0	0,52	0,54	0,88	
INDUCTANCE per PHASE	mH	7,2	8,0	15,6	1,2	2,0	4,0	
HOLDING TORQUE	N·m	0,44	0,5	0,65	0,64	1,0	1,5	
ROTOR INERTIA	g·cm <sup>2</sup>	54	77	114	180	280	520	
WEIGHTS	g	280	350	500	500	720	1150	
LENGTH(L)	mm	40	48	60	46	55	80	
PERMISSIBLE OVERHUNG LOAD (DISTANCE FROM END OF SHAFT)	3mm	N	22	22	22	52	52	52
	8mm		26	26	26	65	65	65
	13mm		33	33	33	85	85	85
	18mm		46	46	46	123	123	123
PERMISSIBLE THRUST LOAD	N	Lower than motor weight						
INSULATION RESISTANCE	Mohm	100 MIN,(at 500VDC)						
INSULATION CLASS	-	CLASS B(130°C)						
OPERATING TEMPERATURE	°C	0 to 55						

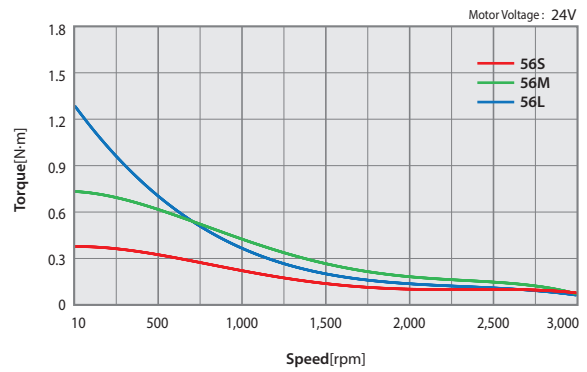
MODEL		Ezi-SERVOII-EC-ALL -60 series			Ezi-SERVOII-EC-ALL -86 series			
		UNIT	60S	60M	60L	86M	86L	86XL
DRIVE METHOD	-	BI-POLAR						
NUMBER OF PHASES	-	2	2	2	2	2	2	
VOLTAGE	VDC	1,32	1,48	2,2	2,34	3,6	4,8	
CURRENT per PHASE	A	4,0	4,0	4,0	6,0	6,0	6,0	
RESISTANCE per PHASE	Ohm	0,33	0,37	0,55	0,39	0,6	0,8	
INDUCTANCE per PHASE	mH	0,75	1,1	2,7	3,0	6,5	8,68	
HOLDING TORQUE	N·m	0,88	1,28	2,4	4,5	8,5	12	
ROTOR INERTIA	g·cm <sup>2</sup>	240	490	690	1800	3600	5400	
WEIGHTS	g	600	1000	1300	2300	3800	5300	
LENGTH(L)	mm	47	56	85	78	117	155	
PERMISSIBLE OVERHUNG LOAD (DISTANCE FROM END OF SHAFT)	3mm	N	70	70	70	270	270	270
	8mm		87	87	87	300	300	300
	13mm		114	114	114	350	350	350
	18mm		165	165	165	400	400	400
PERMISSIBLE THRUST LOAD	N	Lower than motor weight						
INSULATION RESISTANCE	Mohm	100 MIN,(at 500VDC)						
INSULATION CLASS	-	CLASS B(130°C)						
OPERATING TEMPERATURE	°C	0 to 55						

# Torque Characteristics of Motor

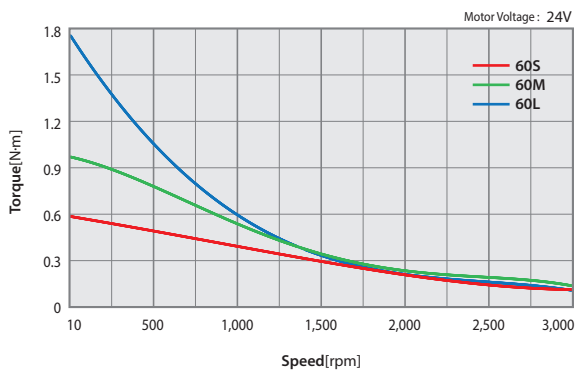
Ezi-SERVOII-EC-ALL-42 series



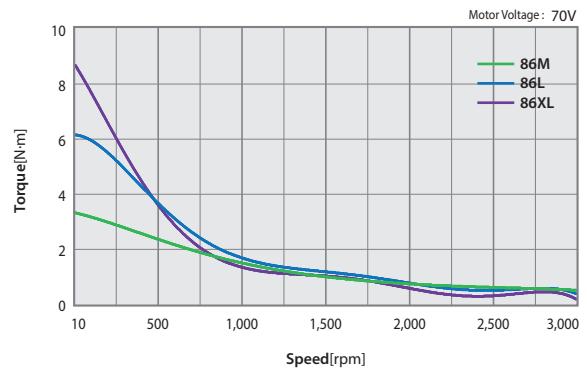
Ezi-SERVOII-EC-ALL-56 series



Ezi-SERVOII-EC-ALL-60 series



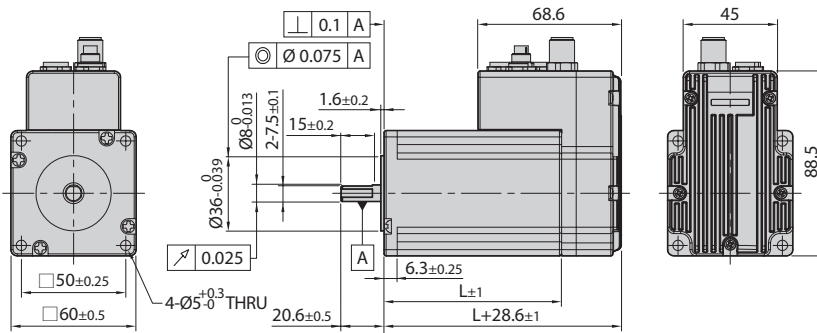
Ezi-SERVOII-EC-ALL-86 series





## ● Dimensions of Motor [mm]

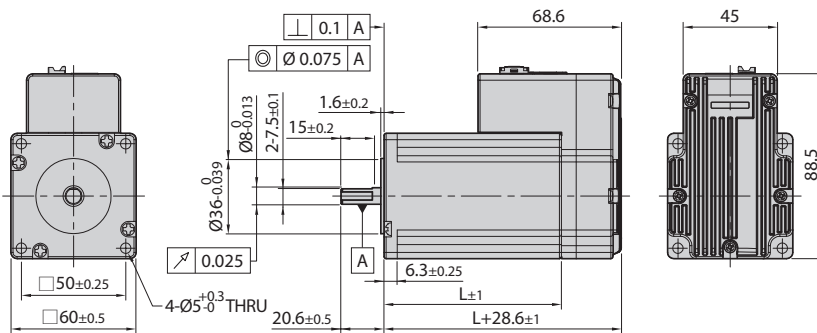
### ◆ M Type



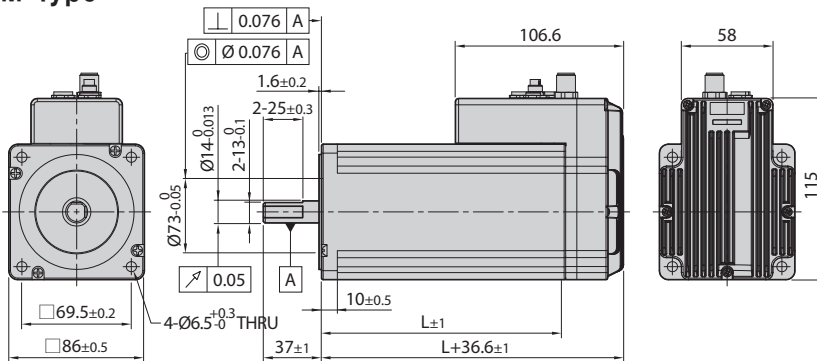
# 60mm

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

### ◆ R Type



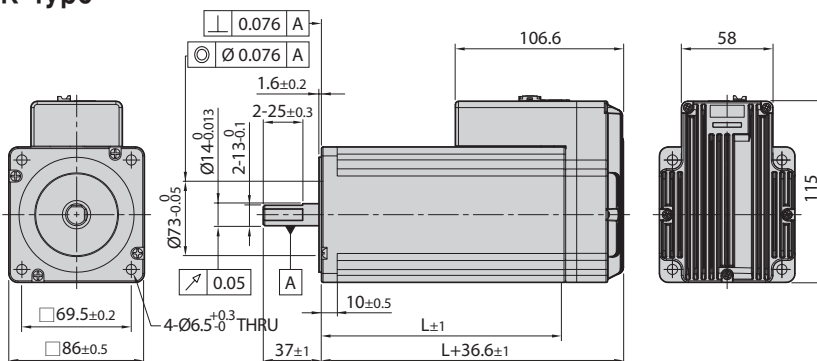
### ◆ M Type



# 86mm

Model name	Length(L)
86M	78
86L	117
86XL	155

### ◆ R Type



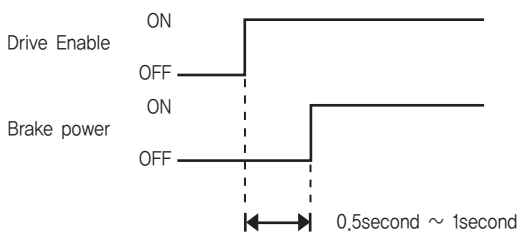
## ● Specifications of Motor with Brake

Unit Part Number	Motor Model Number	Electronic Brake					Motor Unit Weight [g]	Permitted Overhung Load [N]				Permitted Thrust Load [N]
		Type	Voltage Input [V]	Rated Current [A]	Power Consumption [W]	Static Friction Torque [N·m]		Length from Motor Point [mm]				
								3	8	13	18	
Ezi-SERVO II-EC-ALL-42M-■-BK-▲	Motor & Drive Integrated	Non-excitation run Type	24VDC ±10%	0.2	5	0.2	570	22	26	33	46	Must be Lower than Unit's Weight
Ezi-SERVO II-EC-ALL-42L-■-BK-▲							640					
Ezi-SERVO II-EC-ALL-42XL-■-BK-▲							770					
Ezi-SERVO II-EC-ALL-56S-■-BK-▲				1030	52	65	85	123				
Ezi-SERVO II-EC-ALL-56M-■-BK-▲				1190								
Ezi-SERVO II-EC-ALL-56L-■-BK-▲				1630								
Ezi-SERVO II-EC-ALL-60S-■-BK-▲				1150	70	87	114	165				
Ezi-SERVO II-EC-ALL-60M-■-BK-▲				1350								
Ezi-SERVO II-EC-ALL-60L-■-BK-▲				1960								
Ezi-SERVO II-EC-ALL-86M-■-BK-▲				0.54	13	4	3600	270	300	350	400	
Ezi-SERVO II-EC-ALL-86L-■-BK-▲							5100					
Ezi-SERVO II-EC-ALL-86XL-■-BK-▲							6600					

- \* The code of encoder resolution will be marked in "■"
- \* The code of connector type will be marked in "▲"
- \* Electronic Brake cannot be used for braking. Position hold purpose only when power OFF.
- \* The weight means Motor Unit Weight including Motor and Electronic Brake.
- \* Motor specification and torque characteristic are same as Standard Motor.
- \* An external power supply (24VDC) is not required when installing the Electric Brake on the 86mm motor drive.

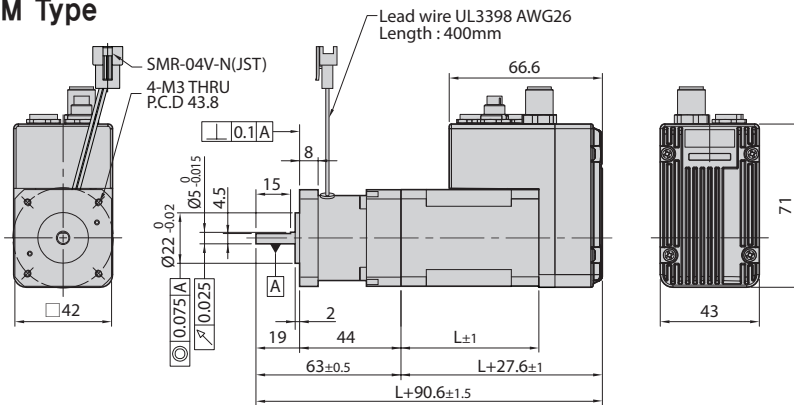
### \* Brake Operation Timing Chart

Ezi-SERVO II EtherCAT ALL controls Brake by Drive automatically.  
 Please refer to below Timing Chart when Brake is controlled by the upper controller other than using Ezi-SERVO II EtherCAT ALL Brake control. Otherwise, Drive malfunctioning and loads can be fall down.  
 Also, please do not operate Brake while motor operation to prevent damage.



## ● Dimensions of Motor with Brake [mm]

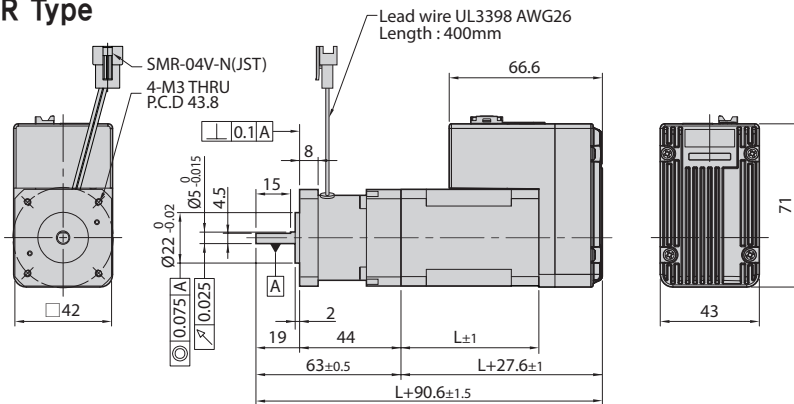
### ◆ M Type



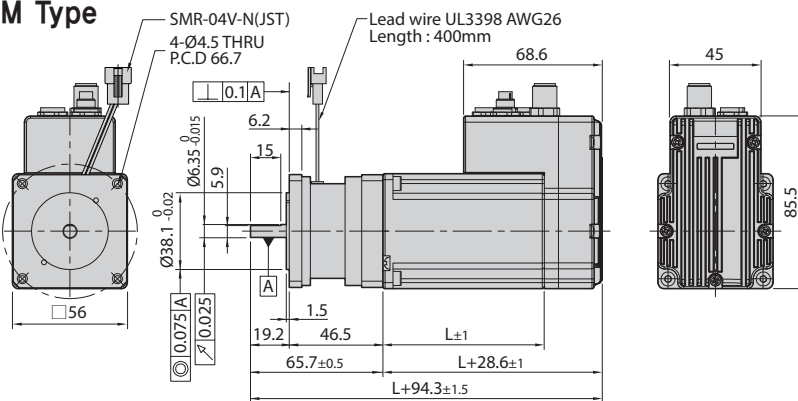
# 42mm

Model Name	Length(L)	Weight(kg)
42M	40	0,57
42L	48	0,64
42XL	60	0,77

### ◆ R Type



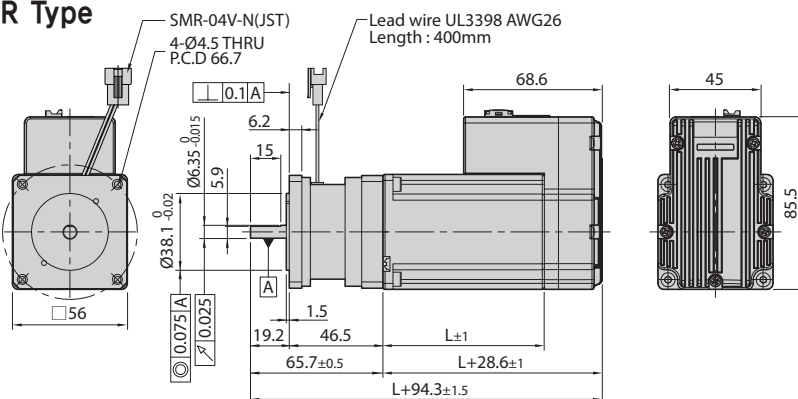
### ◆ M Type



# 56mm

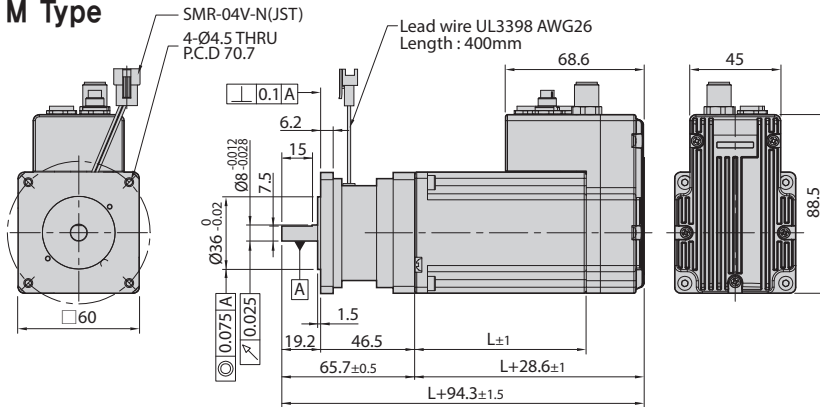
Model Name	Length(L)	Weight(kg)
56S	46	1,03
56M	55	1,19
56L	80	1,63

### ◆ R Type



## ● Dimensions of Motor with Brake [mm]

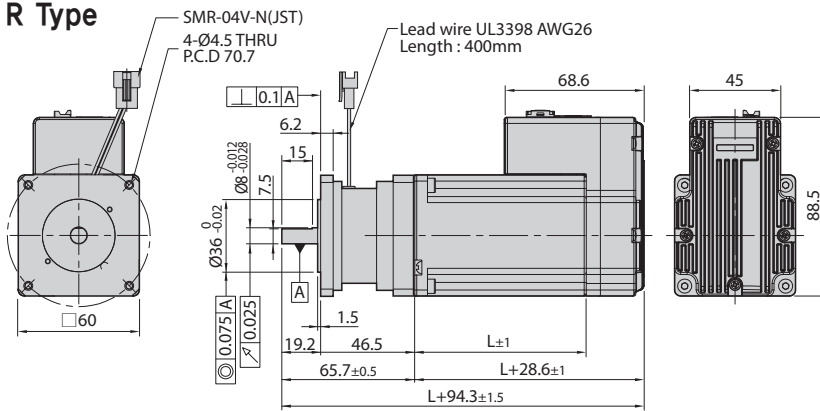
### ◆ M Type



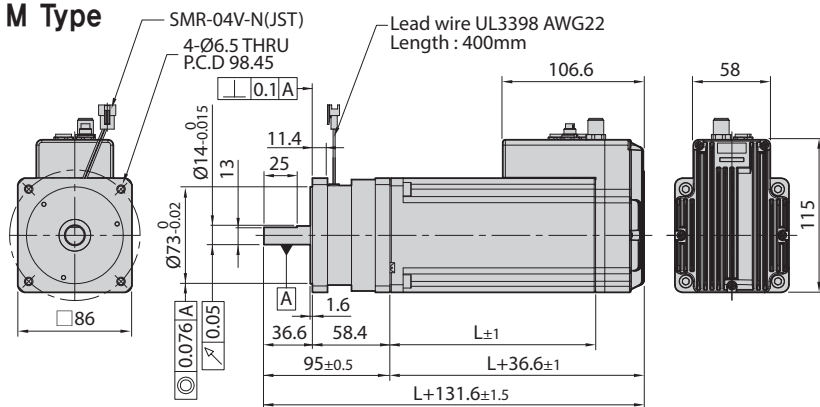
# 60mm

Model Name	Length(L)	Weight(kg)
60S	47	1,15
60M	56	1,35
60L	85	1,96

### ◆ R Type



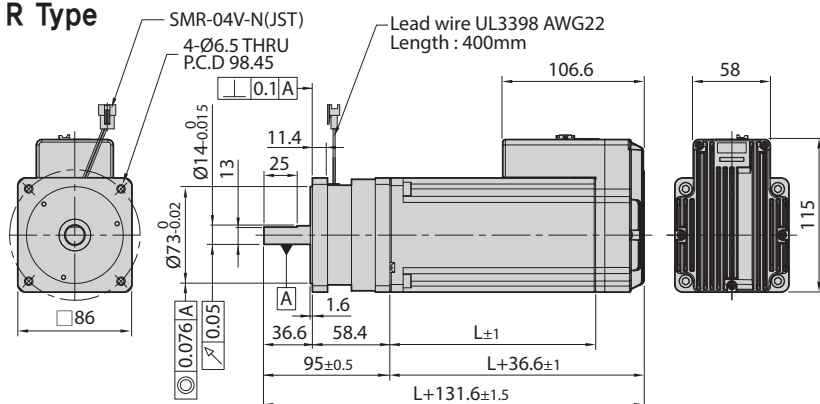
### ◆ M Type



# 86mm

Model Name	Length(L)	Weight(kg)
86M	78	3,6
86L	117	5,1
86XL	155	6,6

### ◆ R Type





## ● Specifications of Motor with Gearbox

# 42<sub>mm</sub>

Unit Part Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m <sup>2</sup> ]	Back-lash [min]	Angle Transmission Error [min]	Re-duction Gear Ratio	Resolution (10,000 [ppr] Standard)	Permitted Torque [N·m]	Maximum Torque [N·m]	Permitted Speed Range [rpm]	Unit Weight [kg]	Permitted Overhung Load [N]	Permitted Thrust Load [N]	
											Axis Center Standard		
Ezi-SERVO II-EC-ALL-42M-■-PN3-▲	0,85	54x10 <sup>-7</sup>	3	5	3	0,012°	6	12	0~1000	0,96	240	270	
Ezi-SERVO II-EC-ALL-42M-■-PN5-▲	1,42				5	0,0072°	9	18	0~600		290	330	
Ezi-SERVO II-EC-ALL-42M-■-PN8-▲	2,28				8	0,0045°	9	18	0~375		340	410	
Ezi-SERVO II-EC-ALL-42M-■-PN10-▲	2,85				10	0,0036°	6	12	0~300		360	450	
Ezi-SERVO II-EC-ALL-42M-■-PN15-▲	4,14		5	7	15	0,0024°	6	12	0~200	1,06	410	540	
Ezi-SERVO II-EC-ALL-42M-■-PN25-▲	6,90				25	0,00144°	9	18	0~120		490	640	
Ezi-SERVO II-EC-ALL-42M-■-PN40-▲	9,00				40	0,0009°	9	18	0~75		570	640	
Ezi-SERVO II-EC-ALL-42M-■-PN50-▲	9,00				50	0,00072°	9	18	0~60		620	640	
Ezi-SERVO II-EC-ALL-42L-■-PN3-▲	0,92		77x10 <sup>-7</sup>	3	5	3	0,012°	6	12	0~1000	1,02	240	270
Ezi-SERVO II-EC-ALL-42L-■-PN5-▲	1,54					5	0,0072°	9	18	0~600		290	330
Ezi-SERVO II-EC-ALL-42L-■-PN8-▲	2,47	8				0,0045°	9	18	0~375	340		410	
Ezi-SERVO II-EC-ALL-42L-■-PN10-▲	3,09	10				0,0036°	6	12	0~300	360		450	
Ezi-SERVO II-EC-ALL-42L-■-PN15-▲	4,49	5		7	15	0,0024°	6	12	0~200	1,12	410	540	
Ezi-SERVO II-EC-ALL-42L-■-PN25-▲	7,49				25	0,00144°	9	18	0~120		490	640	
Ezi-SERVO II-EC-ALL-42L-■-PN40-▲	9,00				40	0,0009°	9	18	0~75		570	640	
Ezi-SERVO II-EC-ALL-42L-■-PN50-▲	9,00				50	0,00072°	9	18	0~60		620	640	
Ezi-SERVO II-EC-ALL-42XL-■-PN3-▲	1,45	114x10 <sup>-7</sup>		3	5	3	0,012°	6	12	0~1000	1,15	240	270
Ezi-SERVO II-EC-ALL-42XL-■-PN5-▲	2,42					5	0,0072°	9	18	0~600		290	330
Ezi-SERVO II-EC-ALL-42XL-■-PN8-▲	3,87		8			0,0045°	9	18	0~375	340		410	
Ezi-SERVO II-EC-ALL-42XL-■-PN10-▲	4,84		10			0,0036°	6	12	0~300	360		450	
Ezi-SERVO II-EC-ALL-42XL-■-PN15-▲	6,00		5	7	15	0,0024°	6	12	0~200	1,25	410	540	
Ezi-SERVO II-EC-ALL-42XL-■-PN25-▲	9,00				25	0,00144°	9	18	0~120		490	640	
Ezi-SERVO II-EC-ALL-42XL-■-PN40-▲	9,00				40	0,0009°	9	18	0~75		570	640	
Ezi-SERVO II-EC-ALL-42XL-■-PN50-▲	9,00				50	0,00072°	9	18	0~60		620	640	

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

\* The code of connector type will be marked in "▲"

## ● Specifications of Motor with Gearbox

# 56mm

Unit Part Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m <sup>2</sup> ]	Back-lash [min]	Angle Transmission Error [min]	Reduction Gear Ratio	Resolution (10,000 [ppr] Standard)	Permitted Torque [N·m]	Maximum Torque [N·m]	Permitted Speed Range [rpm]	Unit Weight [kg]	Permitted Overhung Load [N]	Permitted Thrust Load [N]	
											Axis Center Standard		
Ezi-SERVO II-EC-ALL-56S-■-PN3-▲	1,1	180x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	1,94	430	310	
Ezi-SERVO II-EC-ALL-56S-■-PN5-▲	1,9										510	390	
Ezi-SERVO II-EC-ALL-56S-■-PN8-▲	3,0										600	480	
Ezi-SERVO II-EC-ALL-56S-■-PN10-▲	3,8										640	530	
Ezi-SERVO II-EC-ALL-56S-■-PN15-▲	5,5										2,14	740	630
Ezi-SERVO II-EC-ALL-56S-■-PN25-▲	9,3											870	790
Ezi-SERVO II-EC-ALL-56S-■-PN40-▲	14,9											1000	970
Ezi-SERVO II-EC-ALL-56S-■-PN50-▲	18,6											1100	1100
Ezi-SERVO II-EC-ALL-56M-■-PN3-▲	2,0	280x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	2,15	430	310	
Ezi-SERVO II-EC-ALL-56M-■-PN5-▲	3,4										510	390	
Ezi-SERVO II-EC-ALL-56M-■-PN8-▲	5,4										600	480	
Ezi-SERVO II-EC-ALL-56M-■-PN10-▲	6,8										640	530	
Ezi-SERVO II-EC-ALL-56M-■-PN15-▲	9,9										2,35	740	630
Ezi-SERVO II-EC-ALL-56M-■-PN25-▲	16,6											870	790
Ezi-SERVO II-EC-ALL-56M-■-PN40-▲	27,0											1000	970
Ezi-SERVO II-EC-ALL-56M-■-PN50-▲	27,0											1100	1100
Ezi-SERVO II-EC-ALL-56L-■-PN3-▲	4,0	520x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	2,52	430	310	
Ezi-SERVO II-EC-ALL-56L-■-PN5-▲	6,8										510	390	
Ezi-SERVO II-EC-ALL-56L-■-PN8-▲	10,8										600	480	
Ezi-SERVO II-EC-ALL-56L-■-PN10-▲	13,6										640	530	
Ezi-SERVO II-EC-ALL-56L-■-PN15-▲	18,0										2,72	740	630
Ezi-SERVO II-EC-ALL-56L-■-PN25-▲	27,0											870	790
Ezi-SERVO II-EC-ALL-56L-■-PN40-▲	27,0											1000	970
Ezi-SERVO II-EC-ALL-56L-■-PN50-▲	27,0											1100	1100

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

\* The code of connector type will be marked in "▲"

## ● Specifications of Motor with Gearbox

# 60<sub>mm</sub>

Unit Part Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m <sup>2</sup> ]	Back-lash [min]	Angle Transmission Error [min]	Re-duction Gear Ratio	Resolution (10,000 [ppr] Standard)	Permitted Torque [N·m]	Maximum Torque [N·m]	Permitted Speed Range [rpm]	Unit Weight [kg]	Permitted Overhung Load [N]		
											Axis Center Standard	Permitted Thrust Load [N]	
Ezi-SERVO II-EC-ALL-60S-■-PN3-▲	1,5	240x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	2,0	430	310	
Ezi-SERVO II-EC-ALL-60S-■-PN5-▲	2,5										510	390	
Ezi-SERVO II-EC-ALL-60S-■-PN8-▲	4,0										600	480	
Ezi-SERVO II-EC-ALL-60S-■-PN10-▲	5,1										640	530	
Ezi-SERVO II-EC-ALL-60S-■-PN15-▲	7,4										2,2	740	630
Ezi-SERVO II-EC-ALL-60S-■-PN25-▲	12,3											870	790
Ezi-SERVO II-EC-ALL-60S-■-PN40-▲	19,8											1000	970
Ezi-SERVO II-EC-ALL-60S-■-PN50-▲	24,7											1100	1100
Ezi-SERVO II-EC-ALL-60M-■-PN3-▲	2,6	490x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	2,0	430	310	
Ezi-SERVO II-EC-ALL-60M-■-PN5-▲	4,4										510	390	
Ezi-SERVO II-EC-ALL-60M-■-PN8-▲	7,0										600	480	
Ezi-SERVO II-EC-ALL-60M-■-PN10-▲	8,8										640	530	
Ezi-SERVO II-EC-ALL-60M-■-PN15-▲	12,8										2,2	740	630
Ezi-SERVO II-EC-ALL-60M-■-PN25-▲	21,4											870	790
Ezi-SERVO II-EC-ALL-60M-■-PN40-▲	27,0											1000	970
Ezi-SERVO II-EC-ALL-60M-■-PN50-▲	27,0											1100	1100
Ezi-SERVO II-EC-ALL-60L-■-PN3-▲	5,2	690x10 <sup>-7</sup>	3	5	3	0,012°	18	35	0~1000	3,0	430	310	
Ezi-SERVO II-EC-ALL-60L-■-PN5-▲	8,7										510	390	
Ezi-SERVO II-EC-ALL-60L-■-PN8-▲	13,9										600	480	
Ezi-SERVO II-EC-ALL-60L-■-PN10-▲	18,0										640	530	
Ezi-SERVO II-EC-ALL-60L-■-PN15-▲	18,0										3,2	740	630
Ezi-SERVO II-EC-ALL-60L-■-PN25-▲	27,0											870	790
Ezi-SERVO II-EC-ALL-60L-■-PN40-▲	27,0											1000	970
Ezi-SERVO II-EC-ALL-60L-■-PN50-▲	27,0											1100	1100

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

\* The code of connector type will be marked in "▲"

## ● Specifications of Motor with Gearbox

# 86mm

Unit Part Number	Maximum Holding Torque [N·m]	Rotor Inertia Moment [kg·m <sup>2</sup> ]	Back-lash [min]	Angle Transmission Error [min]	Reduction Gear Ratio	Resolution (10,000 [ppr] Standard)	Permitted Torque [N·m]	Maximum Torque [N·m]	Permitted Speed Range [rpm]	Unit Weight [kg]	Permitted Overhung Load [N]	Permitted Thrust Load [N]	
											Axis Center Standard		
Ezi-SERVO II-EC-ALL-86M-■-PN3-▲	9,6	1800x10 <sup>-7</sup>	3	5	3	0,012°	50	80	0~1000	6,0	810	930	
Ezi-SERVO II-EC-ALL-86M-■-PN5-▲	16,0										960	1200	
Ezi-SERVO II-EC-ALL-86M-■-PN8-▲	25,7										1100	1400	
Ezi-SERVO II-EC-ALL-86M-■-PN10-▲	32,1										1200	1600	
Ezi-SERVO II-EC-ALL-86M-■-PN15-▲	46,6										6,5	1200	1900
Ezi-SERVO II-EC-ALL-86M-■-PN25-▲	75,0											1600	2200
Ezi-SERVO II-EC-ALL-86M-■-PN40-▲	75,0											1900	2200
Ezi-SERVO II-EC-ALL-86M-■-PN50-▲	75,0											2100	2200
Ezi-SERVO II-EC-ALL-86L-■-PN3-▲	17,1	3600x10 <sup>-7</sup>	3	5	3	0,012°	50	80	0~1000	7,5	810	930	
Ezi-SERVO II-EC-ALL-86L-■-PN5-▲	28,5										960	1200	
Ezi-SERVO II-EC-ALL-86L-■-PN8-▲	45,6										1100	1400	
Ezi-SERVO II-EC-ALL-86L-■-PN10-▲	50,0										1200	1600	
Ezi-SERVO II-EC-ALL-86L-■-PN15-▲	50,0										8,0	1200	1900
Ezi-SERVO II-EC-ALL-86L-■-PN25-▲	75,0											1600	2200
Ezi-SERVO II-EC-ALL-86L-■-PN40-▲	75,0											1900	2200
Ezi-SERVO II-EC-ALL-86L-■-PN50-▲	75,0											2100	2200
Ezi-SERVO II-EC-ALL-86XL-■-PN3-▲	23,6	5400x10 <sup>-7</sup>	3	5	3	0,012°	50	80	0~1000	9,0	810	930	
Ezi-SERVO II-EC-ALL-86XL-■-PN5-▲	39,4										960	1200	
Ezi-SERVO II-EC-ALL-86XL-■-PN8-▲	63,0										1100	1400	
Ezi-SERVO II-EC-ALL-86XL-■-PN10-▲	50,0										1200	1600	
Ezi-SERVO II-EC-ALL-86XL-■-PN15-▲	50,0										9,5	1200	1900
Ezi-SERVO II-EC-ALL-86XL-■-PN25-▲	75,0											1600	2200
Ezi-SERVO II-EC-ALL-86XL-■-PN40-▲	75,0											1900	2200
Ezi-SERVO II-EC-ALL-86XL-■-PN50-▲	75,0											2100	2200

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

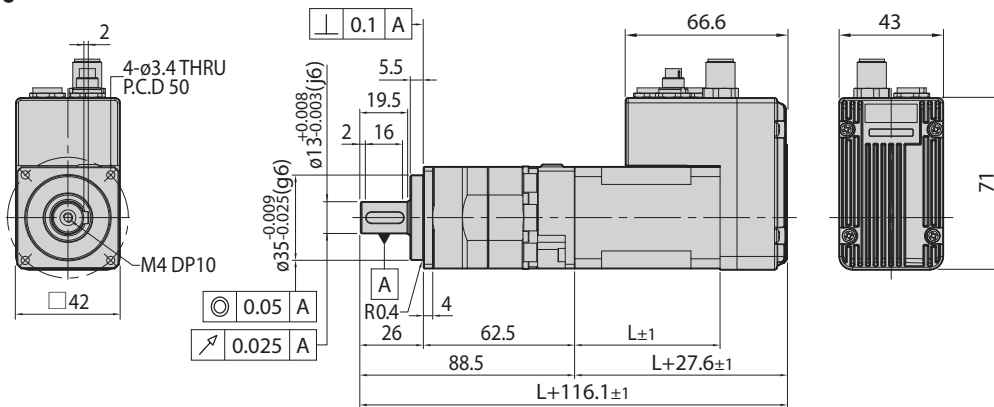
\* The code of connector type will be marked in "▲"

# 42mm

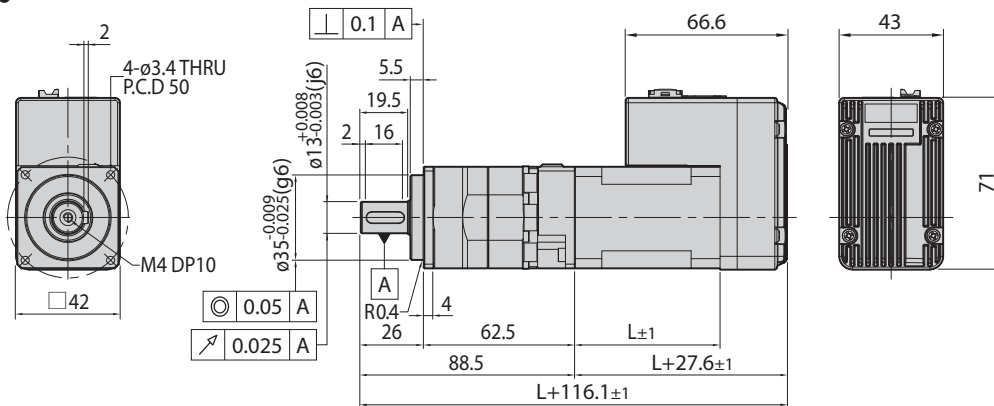
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II-EC-ALL-42M-■-PN□-▲	Motor & Drive Integrated	Single Stage	3, 5, 8, 10	40
Ezi-SERVO II-EC-ALL-42L-■-PN□-▲			3, 5, 8, 10	48
Ezi-SERVO II-EC-ALL-42XL-■-PN□-▲			3, 5, 8, 10	60

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

## ◆ M Type



## ◆ R Type

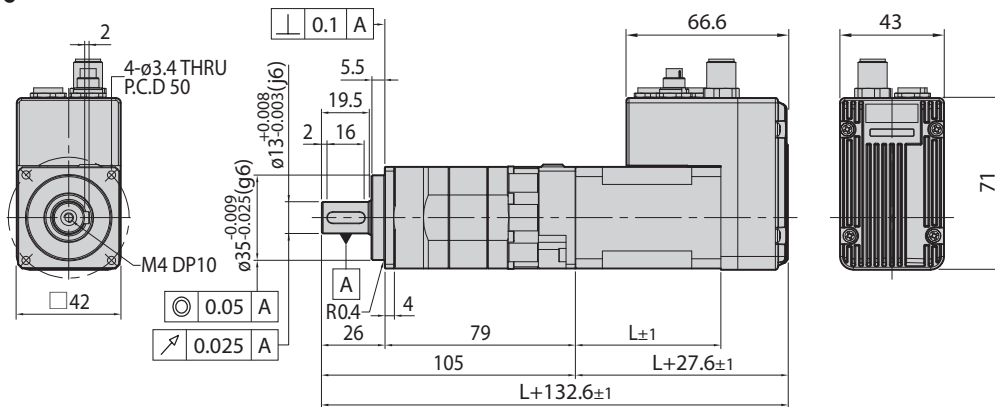


# 42mm

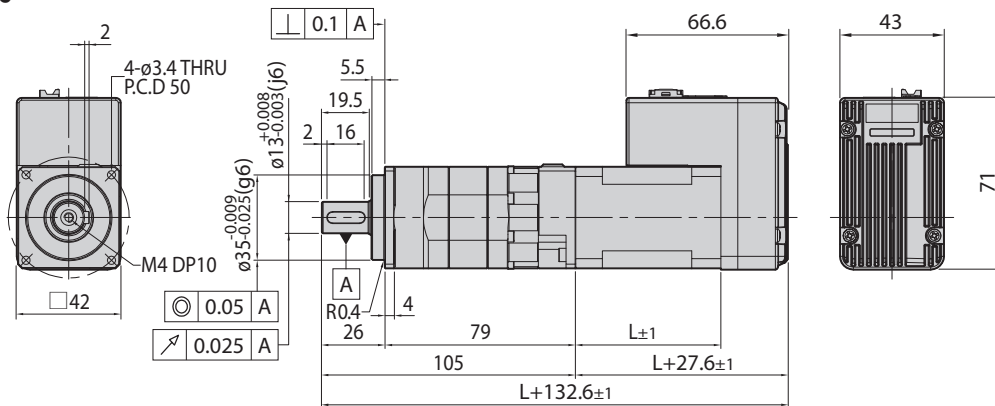
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II -EC-ALL-42M-■-PN□-▲	Motor & Drive Integrated	Double Stage	15, 25, 40, 50	40
Ezi-SERVO II -EC-ALL-42L-■-PN□-▲			15, 25, 40, 50	48
Ezi-SERVO II -EC-ALL-42XL-■-PN□-▲			15, 25, 40, 50	60

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

## ◆ M Type



## ◆ R Type



# ● Dimensions of Motor with Gearbox [mm]

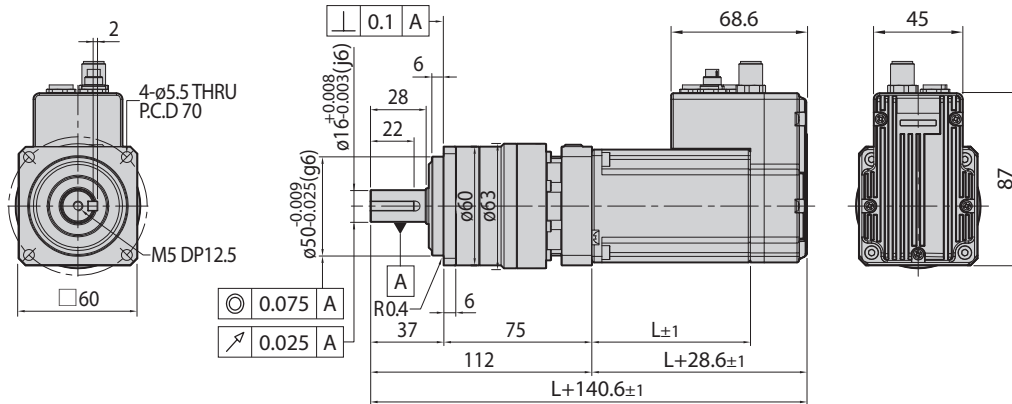
# Single Stage

## 56mm

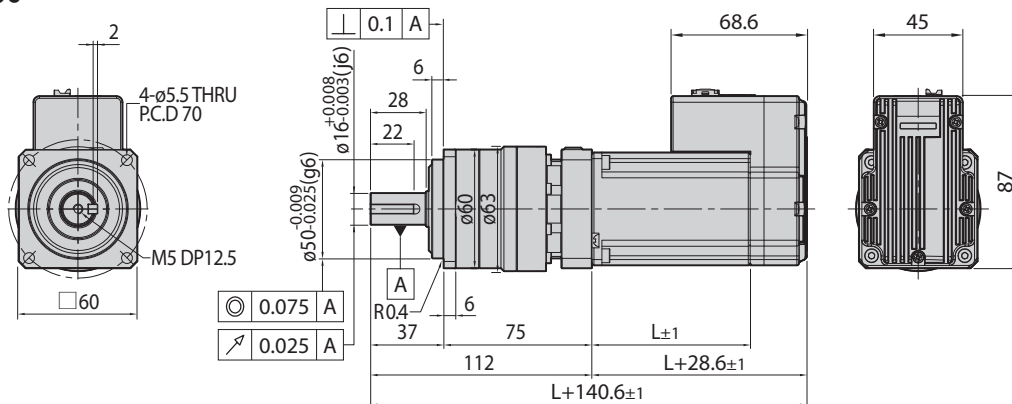
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II-EC-ALL-56S-■-PN□-▲	Motor & Drive Integrated	Single Stage	3, 5, 8, 10	46
Ezi-SERVO II-EC-ALL-56M-■-PN□-▲			3, 5, 8, 10	55
Ezi-SERVO II-EC-ALL-56L-■-PN□-▲			3, 5, 8, 10	80

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

### ◆ M Type



### ◆ R Type



# ● Dimensions of Motor with Gearbox [mm]

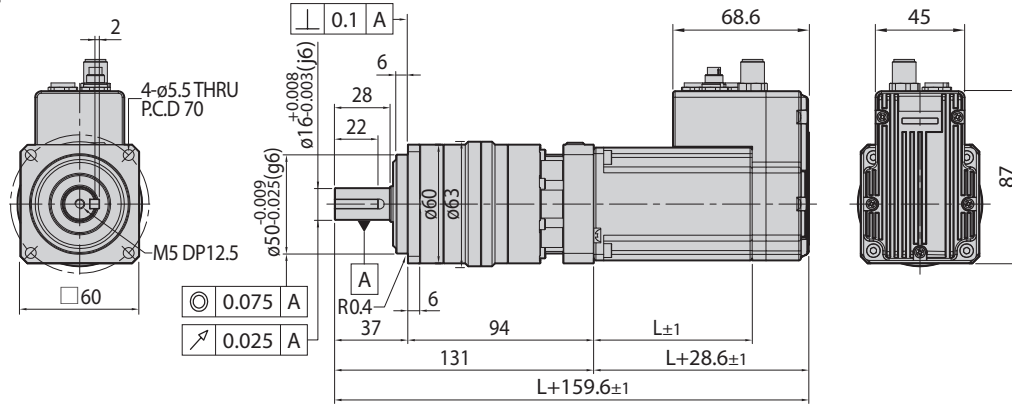
# Double Stage

## 56mm

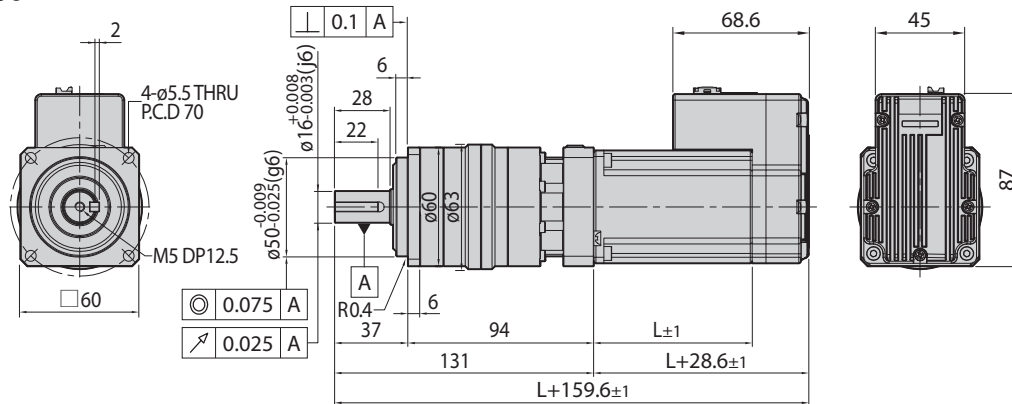
Unit Part Number	Motor	Stage	Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II -EC-ALL-56S-■-PN□-▲	Motor & Drive Integrated	Double Stage	15, 25, 40, 50	46
Ezi-SERVO II -EC-ALL-56M-■-PN□-▲			15, 25, 40, 50	55
Ezi-SERVO II -EC-ALL-56L-■-PN□-▲			15, 25, 40, 50	80

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

### ◆ M Type



### ◆ R Type





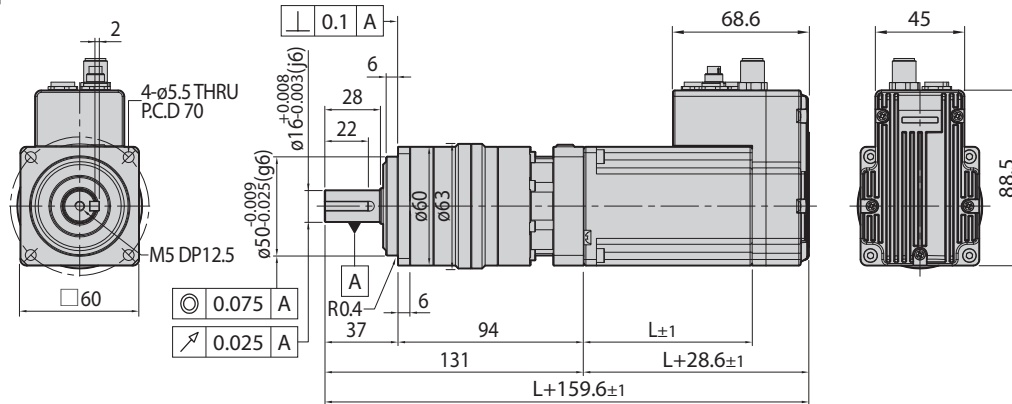


# 60mm

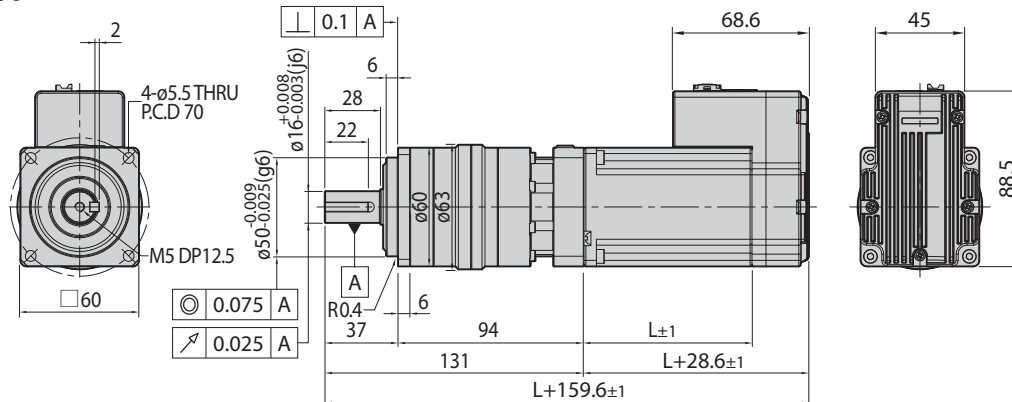
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II -EC-ALL-60S-■-PN□-▲	Motor & Drive Integrated	Double Stage	15, 25, 40, 50	47
Ezi-SERVO II -EC-ALL-60M-■-PN□-▲			15, 25, 40, 50	56
Ezi-SERVO II -EC-ALL-60L-■-PN□-▲			15, 25, 40, 50	85

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

## ◆ M Type



## ◆ R Type



● Dimensions of Motor with Gearbox [mm]

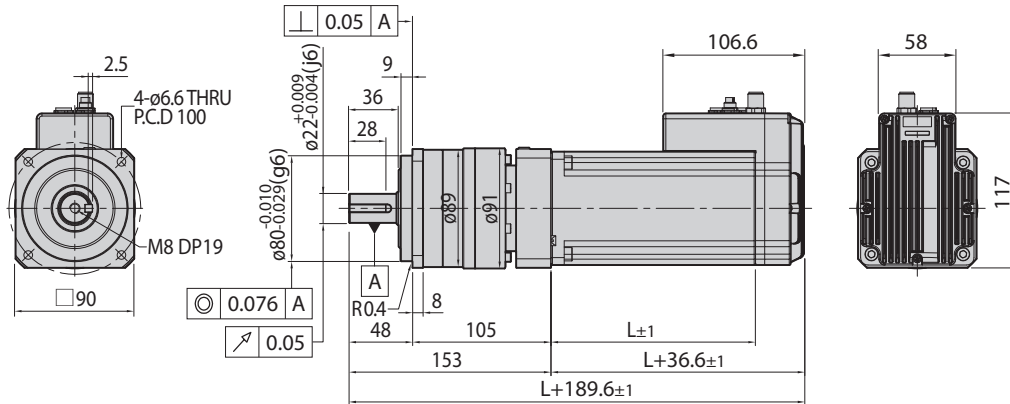
Single Stage

86<sub>mm</sub>

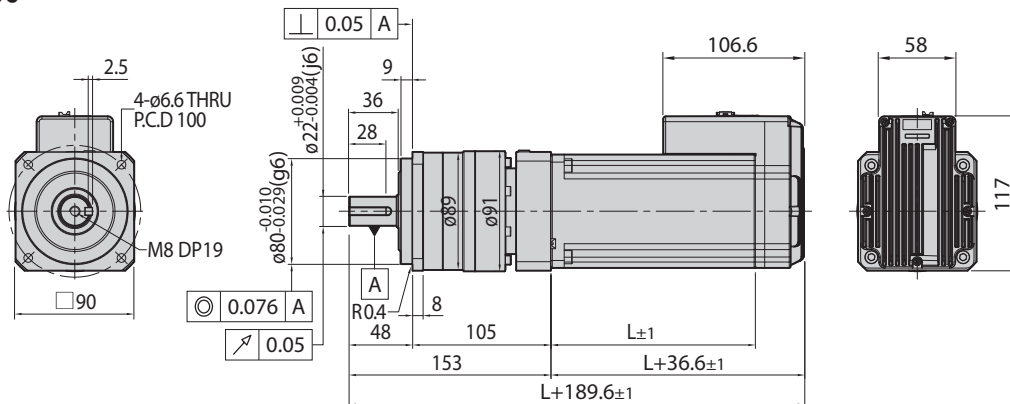
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II-EC-ALL-86M-■-PN□-▲	Motor & Drive Integrated	Single Stage	3, 5, 8, 10	78
Ezi-SERVO II-EC-ALL-86L-■-PN□-▲			3, 5, 8, 10	117
Ezi-SERVO II-EC-ALL-86XL-■-PN□-▲			3, 5, 8, 10	155

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

◆ M Type



◆ R Type

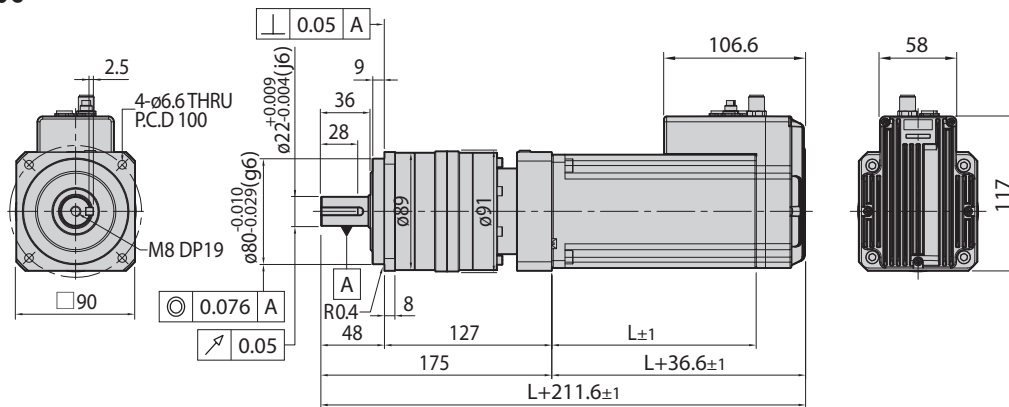


# 86mm

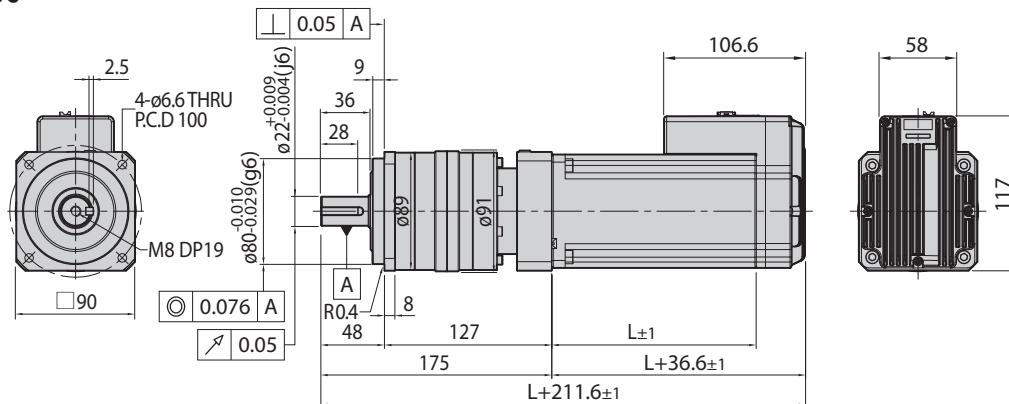
Unit Part Number	Motor	Stage	□ Reduction Gear Ratio	L Length [mm]
Ezi-SERVO II -EC-ALL-86M-■-PN□-▲	Motor & Drive Integrated	Double Stage	15, 25, 40, 50	78
Ezi-SERVO II -EC-ALL-86L-■-PN□-▲			15, 25, 40, 50	117
Ezi-SERVO II -EC-ALL-86XL-■-PN□-▲			15, 25, 40, 50	155

\* The code of encoder resolution will be marked in "■"  
 \* The code of connector type will be marked in "▲"

## ◆ M Type

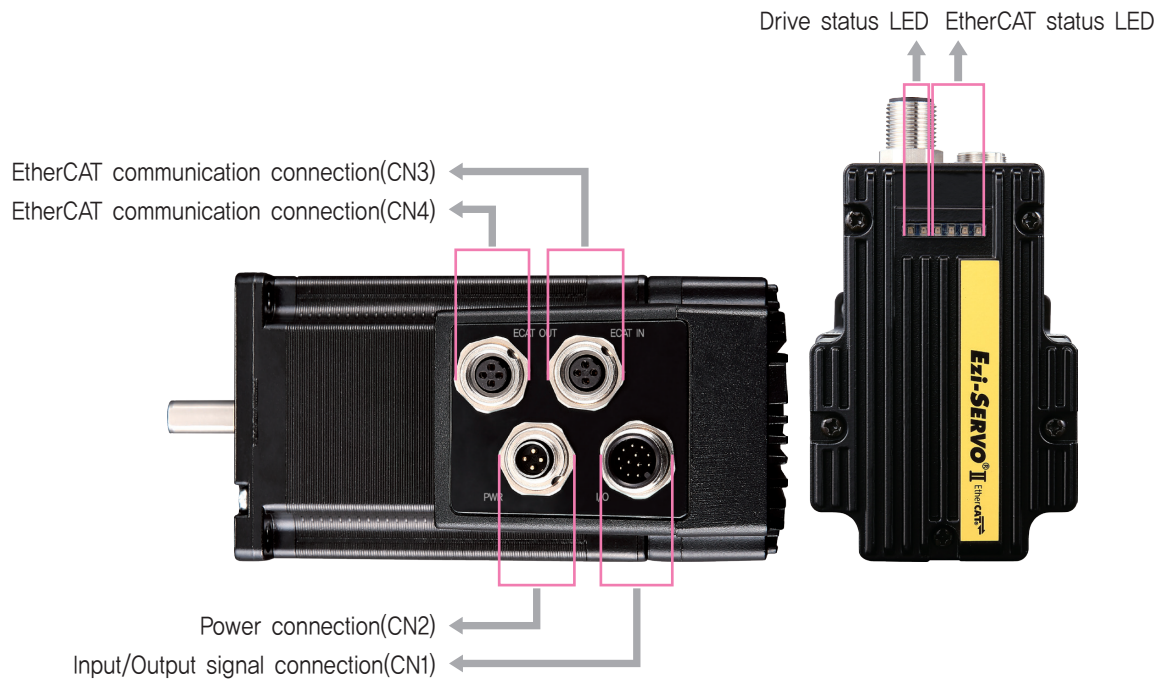


## ◆ R Type

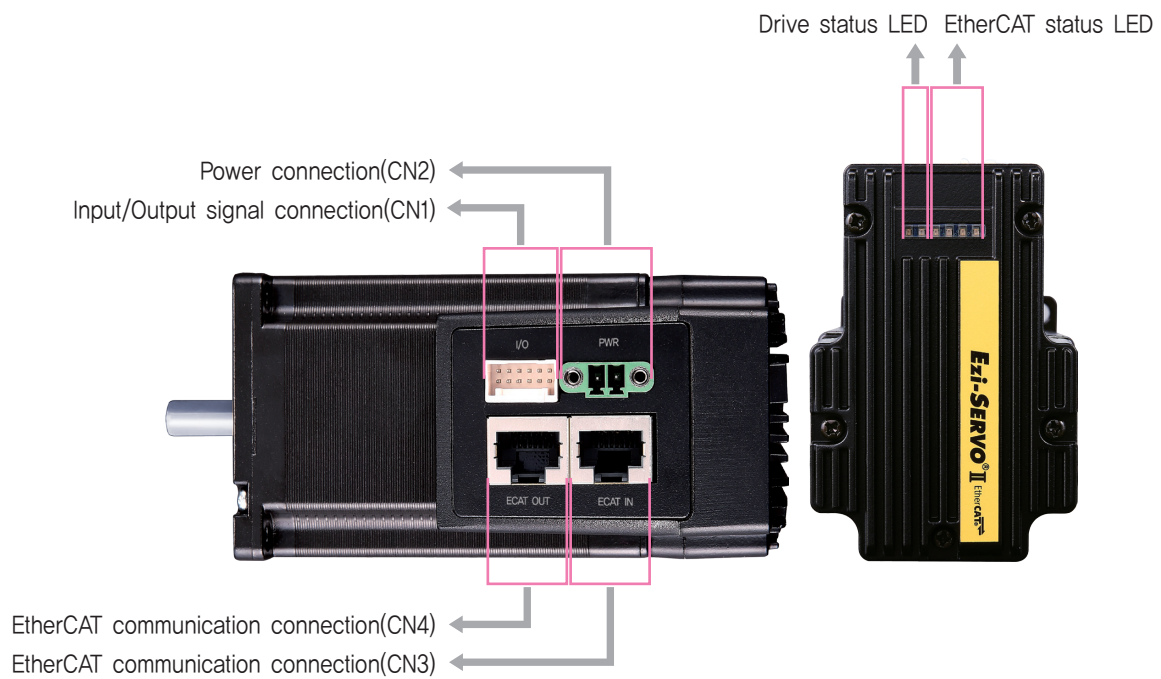


## ● Settings and Operation

### ◆ M Type



### ◆ R Type



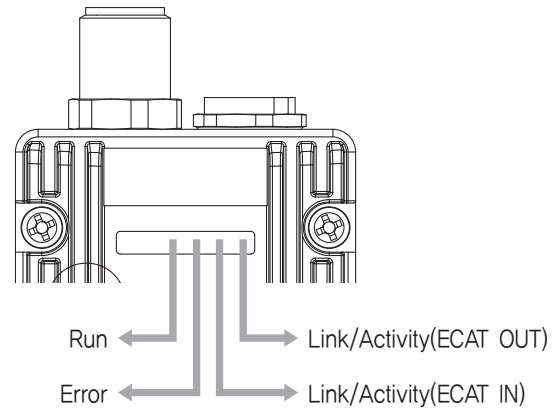
## 1. EtherCAT Status LED

LED indicates communication status of EtherCAT.

Name	Color	Status	Explanation
Run	Green	OFF	State INIT or Power OFF
		Blinking	State PRE-OPERATIONAL
		Single Flash	State SAFE-OPERATIONAL
		ON	State OPERATIONAL
		Flickering	State BOOTSTRAP











Name	Color	Status	Explanation
Error	Red	OFF	No Error or Power OFF
		Blinking	Invalid Configuration
		Single Flash	Local Error
		Double Flash	Watchdog Time Out

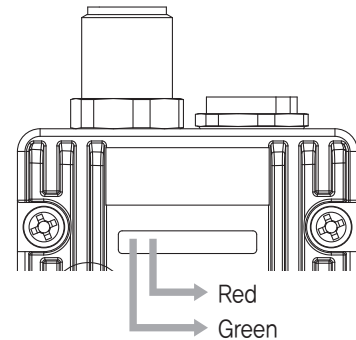
Name	Color	Status	Explanation
Link/ Activity	Green	OFF	Link not Established
		ON	Link Established
		Flickering	Link Established and in Operation



## 2. Drive Status LED

In the case of Ezi-SERVOII EtherCAT ALL series products, LED can be checked by LED color, lighting, On/Off and blinking.

Status	LED	Description
Disable	Green :  Red : 	Green light flashing, Red light off
Enable	Green :  Red : 	Green light on, Red light off
In motion	Green :  Red : 	Green light on, Red light on
In-position deviation	Green :  Red : 	Green and Red light alternately flashing
Alarm	Green :  Red : 	Red light flashing repeatedly as many as alarm number



### ◆ Protection functions and LED flash times

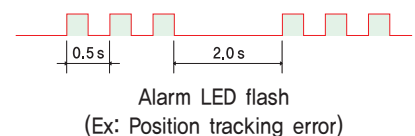
Times	Protection	Conditions
1	Over Current Error	The current through power devices in inverter exceeds the limit value <sup>*1</sup>
2	Over Speed Error	Motor speed exceeds 3,000 [rpm]
3	Position Tracking Error	Position error value is higher than 180° in motor run state <sup>*2</sup>
4	Over Load Error	The motor is continuously operated more than 5 seconds under a load exceeding the max. torque
5	Over Temperature Error	Inside temperature of drive exceeds 85°C
6	Over Regenerated Voltage Error	Back-EMF is higher than limit value <sup>*3</sup>
7	Motor Connect Error	The power is ON without connection of the motor cable to drive
8	Encoder Connect Error	Cable connection error in Encoder connection of drive
10	In-Position Error	After operation is finished, position error more 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 higher than 180° in motor stop state <sup>*2</sup>

\*1 : Limit value depends on motor model, (Refer to the Manual)

\*2 : Default value can be changed by parameter, (Refer to the Manual)

\*3 : Voltage limit of Back-EMF depends on motor model, (Refer to the Manual)

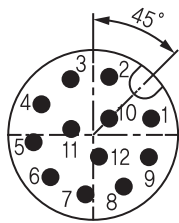
※ Please refer to user Manual for the details of protection functions.



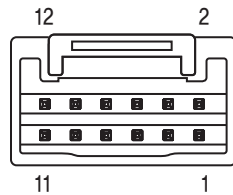
### 3. Input/Output Signal Connector(CN1)

NO.	Function	I/O
1	EXT_24VDC	Input
2	EXT_GND	Input
3	BRAKE+	Output
4	BRAKE-	Output
5	LIMIT+	Input
6	LIMIT-	Input
7	ORIGIN	Input
8	Digital In1	Input
9	Digital In2	Input
10	Digital In3	Input
11	Digital Out1	Output
12	Digital Out2	Output

#### ◆ M Type



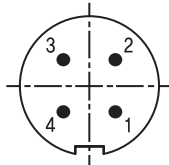
#### ◆ R Type



### 4. Power Connector(CN2)

#### ◆ M Type

NO.	Function	I/O
1	24VDC	Input
2	24VDC	Input
3	GND	Input
4	GND	Input



#### ◆ R Type

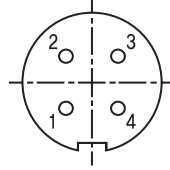
NO.	Function	I/O
1	24VDC	Input
2	GND	Input



### 5. EtherCAT Communication Connector(CN3, CN4)

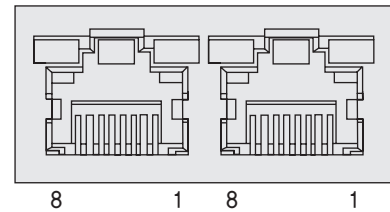
#### ◆ M Type

NO.	Function
1	TD+
2	TD-
3	RD+
4	RD-
Connection hood	F_GND

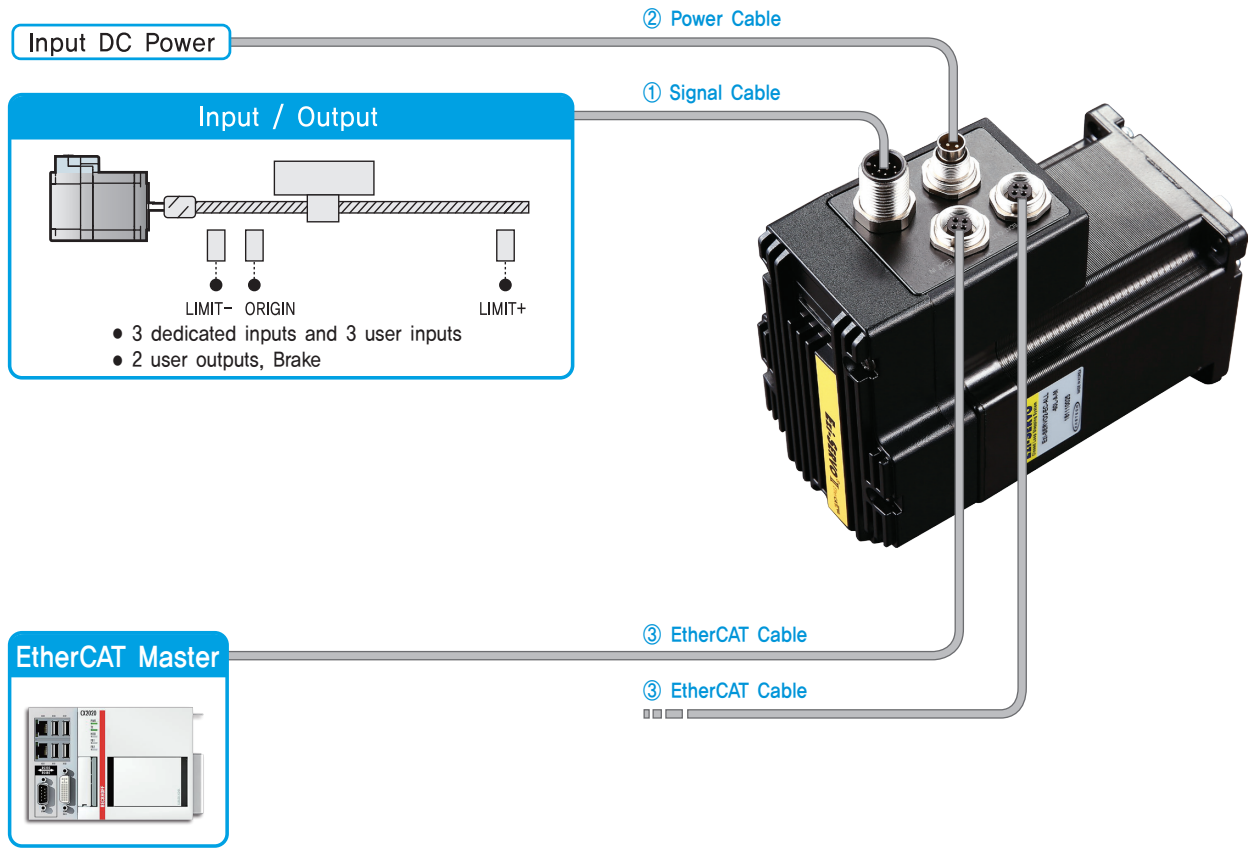


#### ◆ R Type

NO.	Function	NO.	Function
1	TD+	6	RD-
2	TD-	7	----
3	RD+	8	----
4	----	Connection hood	F_GND
5	----		



# ● System Configuration [M Type]



Type	Signal Cable	Power Cable	EtherCAT Cable
Length supplied	—	—	—
Max. Length	20m	2m	100m

FASTECH Ezi-SERVO II EtherCAT ALL

## 1. Options

### ① Signal Cable

Available to connect between Input/Output signals and Ezi-SERVO II EtherCAT ALL.

Item	Length [m]	Remark
CSNM-S-□□□F	□□□	Normal Cable
CSNM-S-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 20m length.

### ② Power Cable

Available to connect between Power and Ezi-SERVO II EtherCAT ALL.

Item	Length [m]	Remark
CWPA-P-□□□F	□□□	Normal Cable
CWPA-P-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 2m length.

### ③ EtherCAT Cable

STP(Shielded twisted pair) cable of category 5e or higher.

Item	Length [m]	Remark
CGNM-EC-□□□F	□□□	Normal Cable
CGNM-EC-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 100m length.



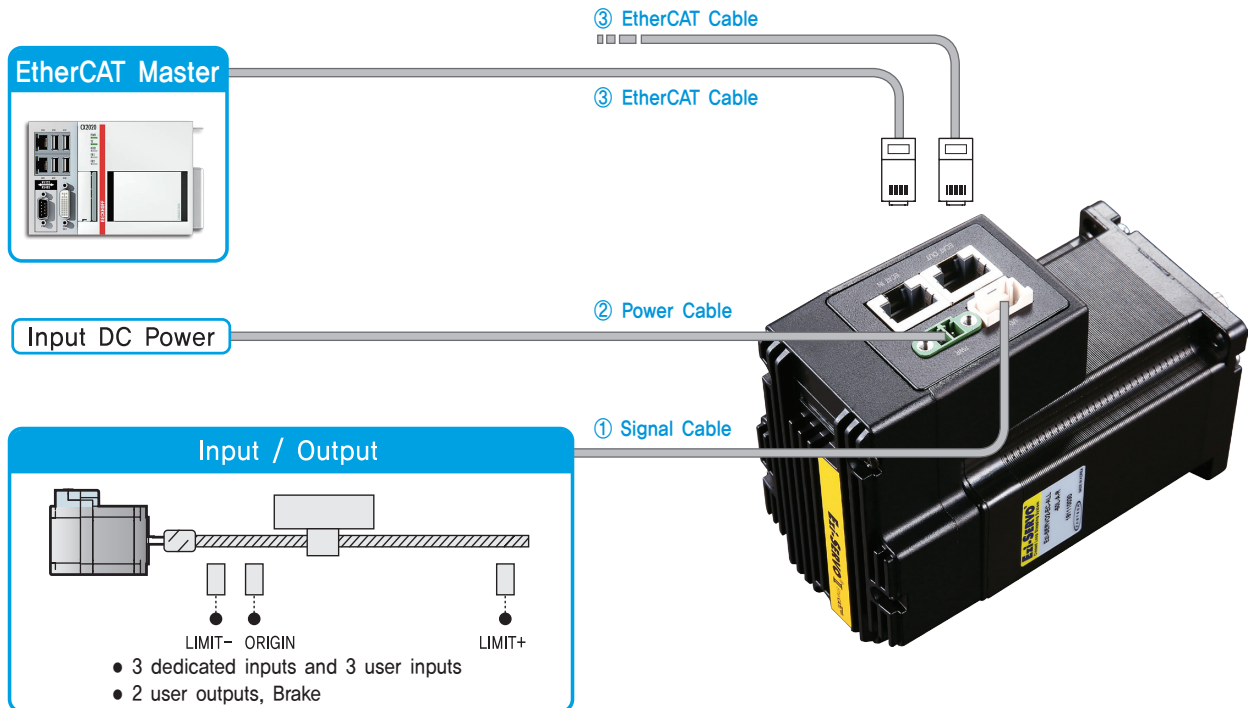
## 2. Connector Specifications

Connector specifications for cabling to drive.

Purpose	Item	Part Number	Manufacturer
Power (CN2)	Connector	99 0410 70 04	BINDER
Signal (CN1)	Connector	99 0492 52 12	BINDER
EtherCAT Communication (CN3, CN4)	Connector	99 0409 70 04	BINDER

※ Above connector is the most suitable product for the drive applied. Another equivalent connector can be used.

# System Configuration [R Type]



Type	Signal Cable	Power Cable	EtherCAT Cable
Length supplied	–	–	–
Max. Length	20m	2m	100m

## 1. Options

### ① Signal Cable

Available to connect between Input/Output signals and Ezi-SERVO II EtherCAT ALL.

Item	Length [m]	Remark
CSNR-S-□□□F	□□□	Normal Cable
CSNR-S-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 20m length.

### ② Power Cable

Available to connect between Power and Ezi-SERVO II EtherCAT ALL.

Item	Length [m]	Remark
CSVA-P-□□□F	□□□	Normal Cable
CSVA-P-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 2m length.

### ③ EtherCAT Cable

STP(Shielded twisted pair) cable of category 5e or higher.

Item	Length [m]	Remark
CGNR-EC-□□□F	□□□	Normal Cable
CGNR-EC-□□□M	□□□	Robot Cable

□ is for Cable Length. The unit is 1m and Max, 100m length.

## 2. Connector Specifications

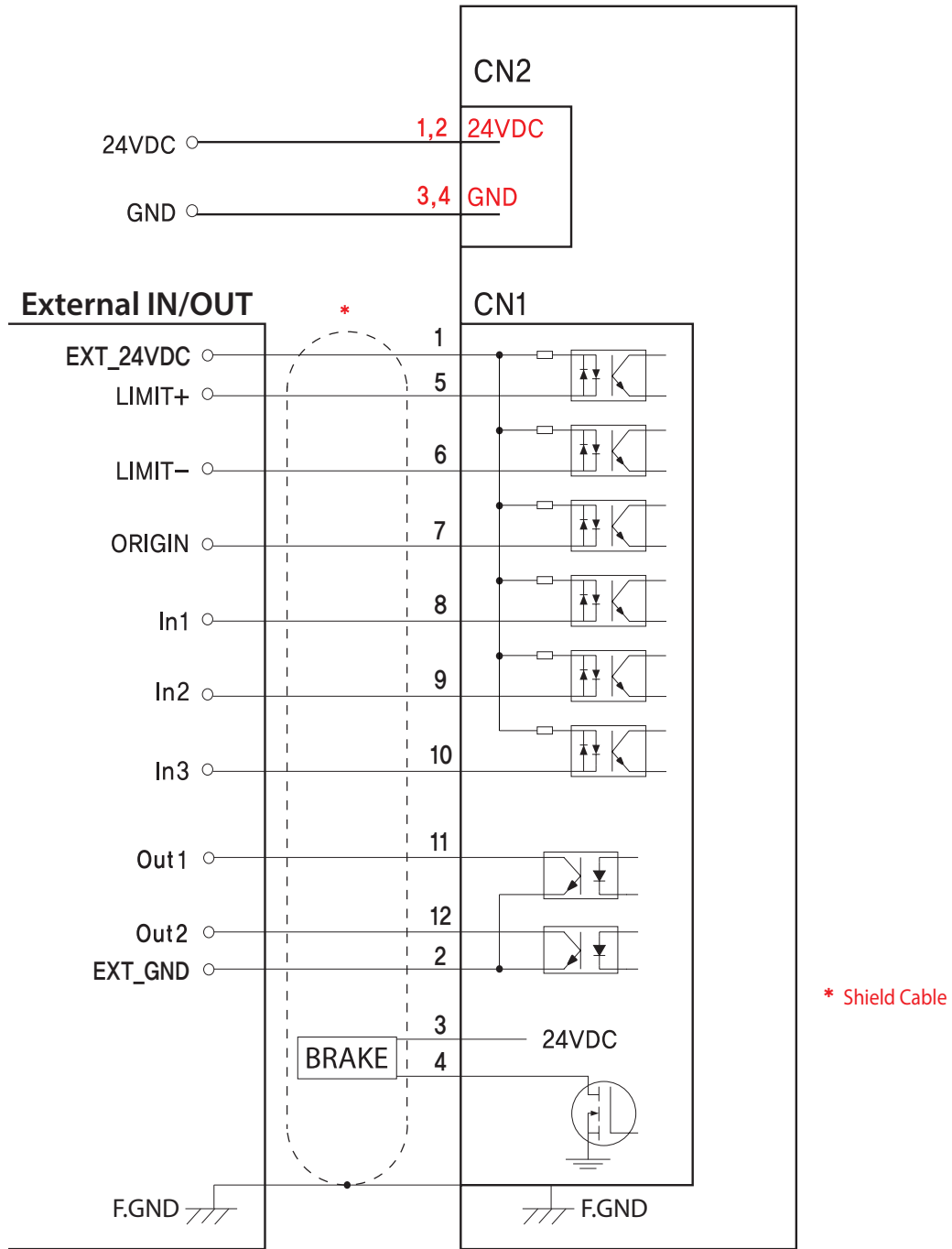
Connector specifications for cabling to drive.

Purpose	Item	Part Number	Manufacturer
Power (CN2)	Terminal Block	MC421-38102	DECA
Signal (CN1)	Housing Terminal	501646-1200 501648-1000(AWG 26~28)	MOLEX

※ Above connector is the most suitable product for the drive applied. Another equivalent connector can be used.

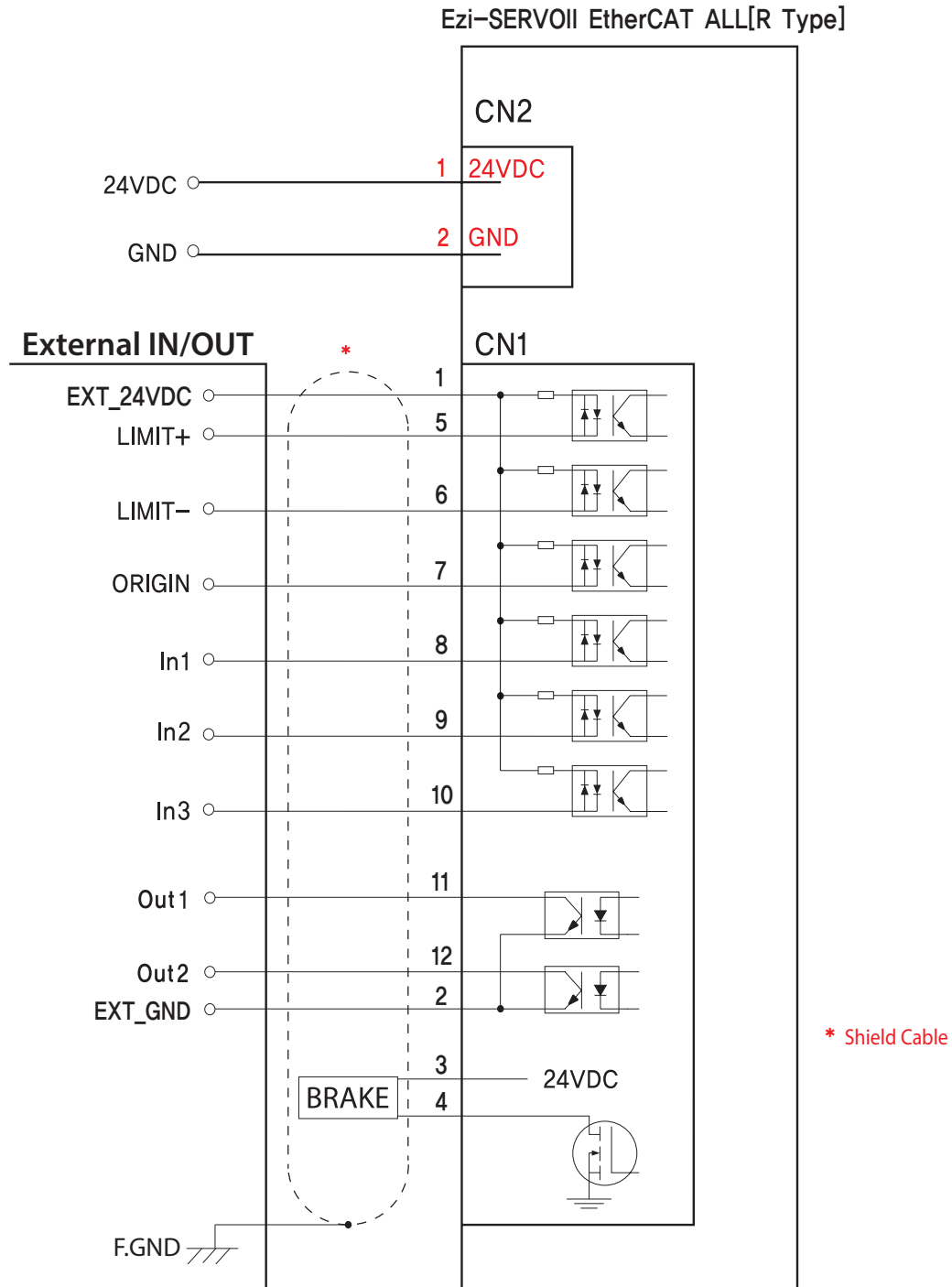
# External Wiring Diagram [M Type]

Ezi-SERVOII EtherCAT ALL[M Type]



※ When connects I/O cable between controller and drive, please turn off the power of both controller and drive, in order to protect the drive from any damage.

## External Wiring Diagram [R Type]



※ When connects I/O cable between controller and drive, please turn off the power of both controller and drive, in order to protect the drive from any damage.

# MEMO

**MEMO**



*Fast, Accurate, Smooth Motion*

**FASTECH Co., Ltd.**

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E-mail : [fastech@fastech.co.kr](mailto:fastech@fastech.co.kr)  
Homepage : [www.fastech.co.kr](http://www.fastech.co.kr)