

# Ezi-SERVO<sup>®</sup>

## Closed Loop Stepping System

- Free Voltage (100~230VAC)
- High Torque Performance at High Speed  
(Compensate Back-EMF at High Speed)
- Reduce Motor Temperature and Save Energy  
(Current Control according to Load)
- Boost Current Control to Improve Torque  
(Max. 150% Current Control)
- Various Motor Line Up (42, 56, 60mm)

# ST·AC



FASTECH

Fast, Accurate, Smooth Motion



*Fast, Accurate, Smooth Motion*

**Ezi-SERVO<sup>®</sup> ST·AC**

**Closed Loop Stepping System**



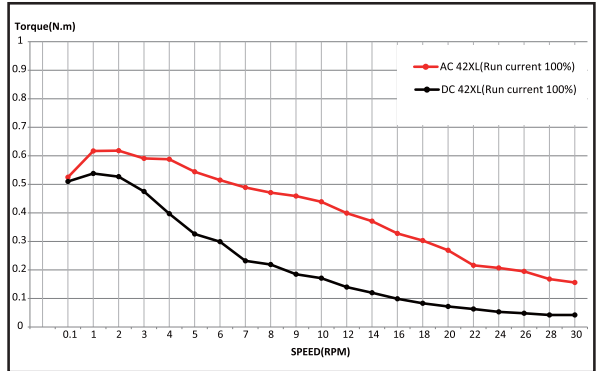
## 1 Free Voltage

Input power of Ezi-SERVO ST-AC is Single Phas 100~230VAC. Available to use all over countries.

**100VAC ~  
230VAC**

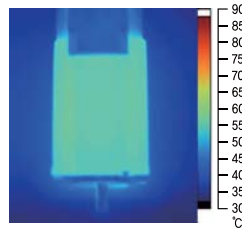
## 2 High Torque Performance at High Speed

Ezi-SERVO ST-AC maintains Max. 40% of high torque at high speed range.

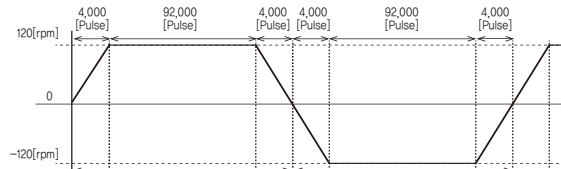


## 3 Reduce the Motor Temperature and Energy Usage

Ezi-SERVO ST-AC automatically control the motor current according to loads. Thus, febricity of motor and drive are minimized so can save the energy as well.



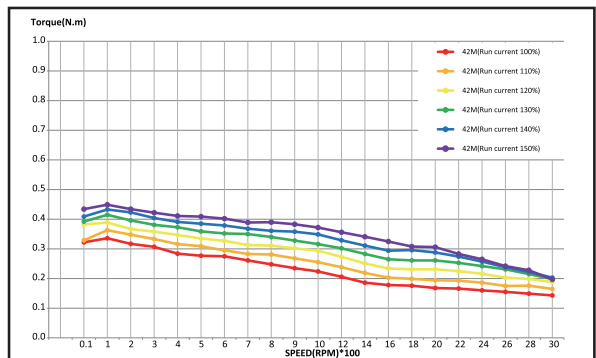
Motor temperature [measured by thermograph]



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

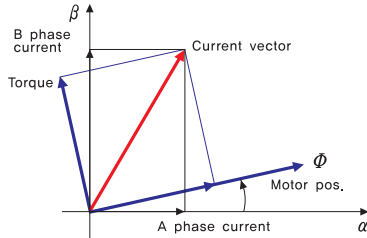
## 4 Torque increase by the Boost Current Control

By Boost Current Setting by Parameter setting enables acceleration and deceleration characteristics to be improved.



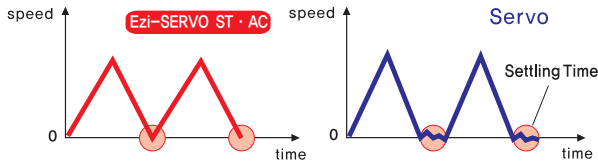
## 5 Smooth and Accurate

Ezi-SERVO ST-AC is a high-precision servo drive, using a high-resolution encoder with Max. 32,000 pulses/revolution. Unlike a conventional Microstep drive, the on-board high performance DSP (Digital Signal Processor) performs vector control and filtering, producing a smooth rotational control with minimum ripples.



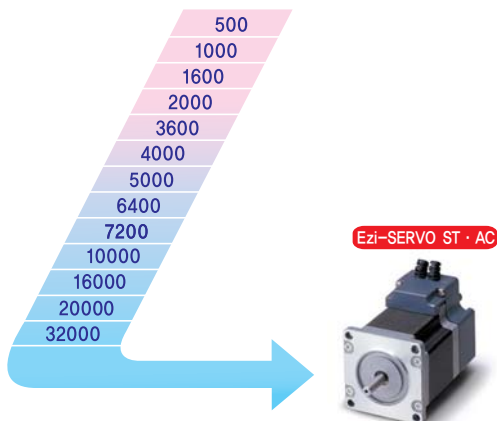
## 6 Fast Response

Similar to conventional stepping motors, Ezi-SERVO ST-AC instantly synchronizes with command pulses providing fast positional response. Ezi-SERVO ST-AC 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 between the commanding input signals and the resultant motion because of the constant monitoring of the current position, necessitating a waiting time until it settles, called settling time.



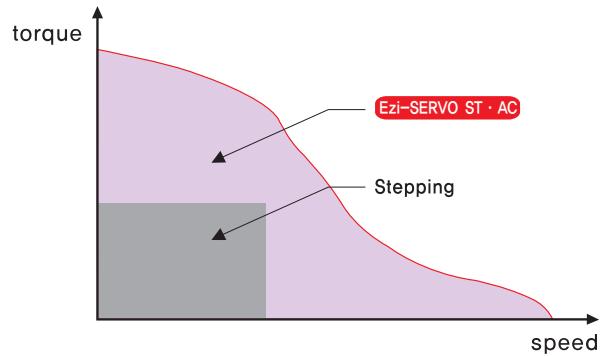
## 7 High Resolution

The unit of the position command can be divided precisely, (Max. 32,000 pulses/revolution)



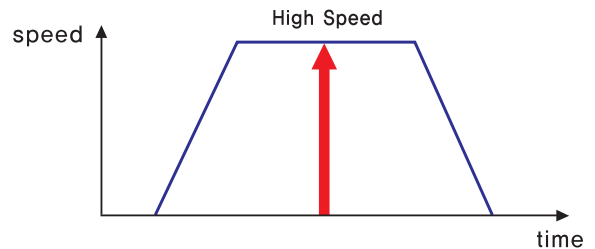
## 8 High Torque

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



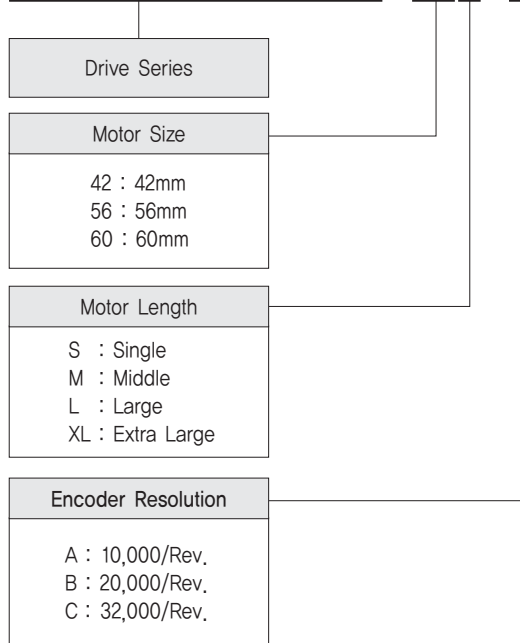
## 9 High Speed

The Ezi-SERVO ST-AC functions well at high speed without the loss of Synchronism or positioning error. Ezi-SERVO ST-AC ability of continuous monitoring of current position enables the stepping motor to generate high-torque, even under a 100% load condition.



## ● Part Numbering

### Ezi-SERVO-ST-AC-42S-A



## ● Combination List of Ezi-SERVO ST-AC

Unit Part Number	Motor Model Number	Drive Model Number
Ezi-SERVO-ST-AC-42S-A	EzM-42S-A	EzS-ACD-42S-A
Ezi-SERVO-ST-AC-42S-B	EzM-42S-B	EzS-ACD-42S-B
Ezi-SERVO-ST-AC-42S-C	EzM-42S-C	EzS-ACD-42S-C
Ezi-SERVO-ST-AC-42M-A	EzM-42M-A	EzS-ACD-42M-A
Ezi-SERVO-ST-AC-42M-B	EzM-42M-B	EzS-ACD-42M-B
Ezi-SERVO-ST-AC-42M-C	EzM-42M-C	EzS-ACD-42M-C
Ezi-SERVO-ST-AC-42L-A	EzM-42L-A	EzS-ACD-42L-A
Ezi-SERVO-ST-AC-42L-B	EzM-42L-B	EzS-ACD-42L-B
Ezi-SERVO-ST-AC-42L-C	EzM-42L-C	EzS-ACD-42L-C
Ezi-SERVO-ST-AC-42XL-A	EzM-42XL-A	EzS-ACD-42XL-A
Ezi-SERVO-ST-AC-42XL-B	EzM-42XL-B	EzS-ACD-42XL-B
Ezi-SERVO-ST-AC-42XL-C	EzM-42XL-C	EzS-ACD-42XL-C
Ezi-SERVO-ST-AC-56S-A	EzM-56S-A	EzS-ACD-56S-A
Ezi-SERVO-ST-AC-56S-B	EzM-56S-B	EzS-ACD-56S-B
Ezi-SERVO-ST-AC-56S-C	EzM-56S-C	EzS-ACD-56S-C
Ezi-SERVO-ST-AC-56M-A	EzM-56M-A	EzS-ACD-56M-A
Ezi-SERVO-ST-AC-56M-B	EzM-56M-B	EzS-ACD-56M-B
Ezi-SERVO-ST-AC-56M-C	EzM-56M-C	EzS-ACD-56M-C
Ezi-SERVO-ST-AC-56L-A	EzM-56L-A	EzS-ACD-56L-A
Ezi-SERVO-ST-AC-56L-B	EzM-56L-B	EzS-ACD-56L-B
Ezi-SERVO-ST-AC-56L-C	EzM-56L-C	EzS-ACD-56L-C
Ezi-SERVO-ST-AC-60S-A	EzM-60S-3A-A	EzS-ACD-60S-A
Ezi-SERVO-ST-AC-60S-B	EzM-60S-3A-B	EzS-ACD-60S-B
Ezi-SERVO-ST-AC-60S-C	EzM-60S-3A-C	EzS-ACD-60S-C
Ezi-SERVO-ST-AC-60M-A	EzM-60M-3A-A	EzS-ACD-60M-A
Ezi-SERVO-ST-AC-60M-B	EzM-60M-3A-B	EzS-ACD-60M-B
Ezi-SERVO-ST-AC-60M-C	EzM-60M-3A-C	EzS-ACD-60M-C
Ezi-SERVO-ST-AC-60L-A	EzM-60L-3A-A	EzS-ACD-60L-A
Ezi-SERVO-ST-AC-60L-B	EzM-60L-3A-B	EzS-ACD-60L-B
Ezi-SERVO-ST-AC-60L-C	EzM-60L-3A-C	EzS-ACD-60L-C

## ● 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 ST-AC 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 stepper drivers use a constant current control at all speed ranges without considering load variations.

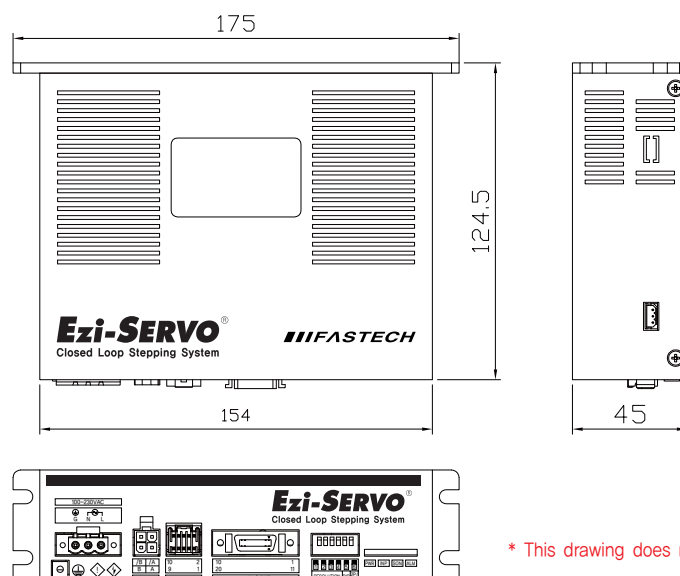
## ● Advantages over Servo Motor Controller

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

## ● Specifications

Motor Model	EzM-42 series	EzM-56 series	EzM-60-3A series
Drive Model	EzS-ACD-42 series	EzS-ACD-56 series	EzS-ACD-60 series
Input Voltage	110~230VAC		
Control Method	PWM Bipolar Control Method		
Current Consumption	Max. 500mA (Except motor current)		
Environment	Temperature	In-Use : 0~50°C (Non-Condensing) In-Storage : -20~70°C (Non-Condensing)	
	Humidity	In-Use : 35~85%RH (Non-Condensing) In-Storage : 10~90%RH (Non-Condensing)	
	Vib. Resist	0.5G	
Function	Rotation Speed	1~3,000rpm	
	Resolution[P/R]	10,000/Rev. Encoder Model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 20,000/Rev. Encoder Model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 20,000 32,000/Rev. Encoder Model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 32,000 (Selectable with Rotary Switch)	
	Max. Input	500KHz (Duty 50%)	
	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	
	LED Display	Power status, In-Position Status, Servo On Status, Alarm Status	
	In-Position Selection	0~63 (Set by Parameter) * Default Value : 0	
	Position Gain Selection	0~63 (Set by Parameter) * Default Value : 0	
	Pulse Input Method	1-Pulse/2-Pulse (Selectable with Rotary Switch) * Default Value : 2-Pulse	
	Rotational Direction	CW/CCW (Selectable with Rotary Switch) * Default Value : CW	
	Speed/Position Control Command	Pulse Train Input	
I/O Signal	Input Signals	Position Command Pulse, Servo On/Off, Alarm Reset (Photocoupler Input)	
	Output Signals	In-Position, Alarm (Photocoupler Input) Encoder Signal (A+, A-, B+, B-, Z+, Z-, 26C31 of Equivalent) (Line Driver Output)	
Dimension(mm)	175(W)x124.5(D)x45(H)		
Weight(g)	680 (Drive)		

## ● Drive Dimension [mm]

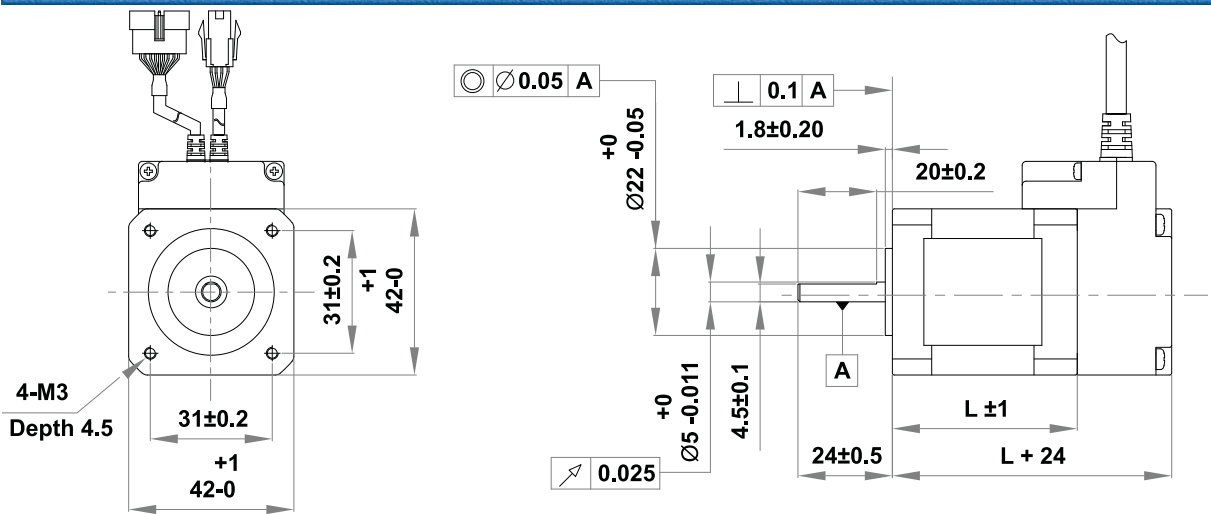


\* This drawing does not include power connector

## ● Motor Specifications

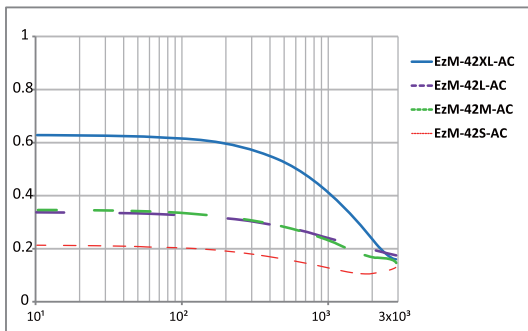
MODEL	UNIT	EzM-42S-A	EzM-42M-A	EzM-42L-A	EzM-42XL-A	
		EzM-42S-B	EzM-42M-B	EzM-42L-B	EzM-42XL-B	
		EzM-42S-C	EzM-42M-C	EzM-42L-C	EzM-42XL-C	
DRIVE METHOD	----	BI-POLAR	BI-POLAR	BI-POLAR	BI-POLAR	
NUMBER OF PHASES	----	2	2	2	2	
VOLTAGE	VDC	3.36	4.32	4.56	7.2	
CURRENT per PHASE	A	1.2	1.2	1.2	1.2	
RESISTANCE per PHASE	Ohm	2.8	3.6	3.8	6	
INDUCTANCE per PHASE	mH	2.5	7.2	8.0	15.6	
HOLDING TORQUE	N · m	0.32	0.44	0.5	0.65	
ROTOR INERTIA	g · cm <sup>2</sup>	35	54	77	114	
WEIGHTS	g	220	280	350	500	
LENGTH (L)	mm	33	39	47	59	
ALLOWABLE OVERHUNG LOAD (DISTANCE FROM END OF SHAFT)	3mm	N	22	22	22	22
	8mm		26	26	26	26
	13mm		33	33	33	33
	18mm		46	46	46	46
ALLOWABLE THRUST LOAD	N	Lower than motor weight				
INSULATION RESISTANCE	MOhm	100min, (at 500VDC)				
INSULATION CLASS	----	CLASS B (130°C)				
OPERATING TEMPERATURE	°C	0 to 55				

## ● Motor Dimension [mm] and Torque Characteristics



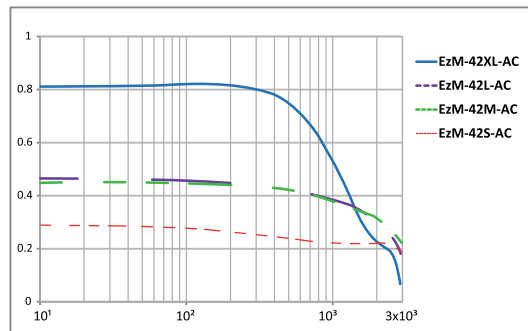
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**EzM-42 series**



※Measured Condition : Run Current = 100%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC

**EzM-42 series**

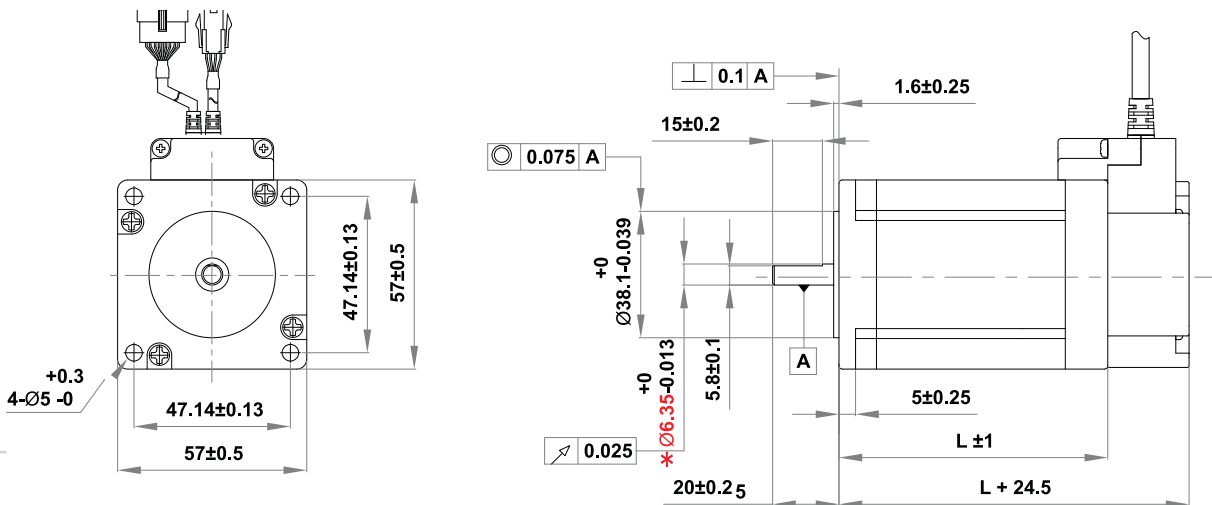


※Measured Condition : Run Current = 150%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC

## ● Motor Specifications

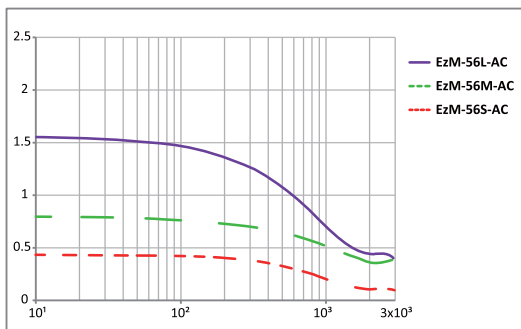
MODEL	UNIT	EzM-56S-A EzM-56S-B EzM-56S-C	EzM-56M-A EzM-56M-B EzM-56M-C	EzM-56L-A EzM-56L-B EzM-56L-C
DRIVE METHOD	----	BI-POLAR	BI-POLAR	BI-POLAR
NUMBER OF PHASES	----	2	2	2
VOLTAGE	VDC	1,56	1,62	2,7
CURRENT per PHASE	A	3	3	3
RESISTANCE per PHASE	Ohm	0,52	0,54	0,9
INDUCTANCE per PHASE	mH	1,0	2,0	3,8
HOLDING TORQUE	N · m	0,64	1,0	1,5
ROTOR INERTIA	g · cm <sup>2</sup>	120	200	480
WEIGHTS	g	500	700	1150
LENGTH (L)	mm	46	54	80
ALLOWABLE OVERHUNG LOAD (DISTANCE FROM END OF SHAFT)	3mm	52	52	52
	8mm	65	65	65
	13mm	85	85	85
	18mm	123	123	123
ALLOWABLE THRUST LOAD	N	Lower than motor weight		
INSULATION RESISTANCE	MOhm	100min, (at 500VDC)		
INSULATION CLASS	----	CLASS B (130°C)		
OPERATING TEMPERATURE	°C	0 to 55		

## ● Motor Dimension [mm] and Torque Characteristics



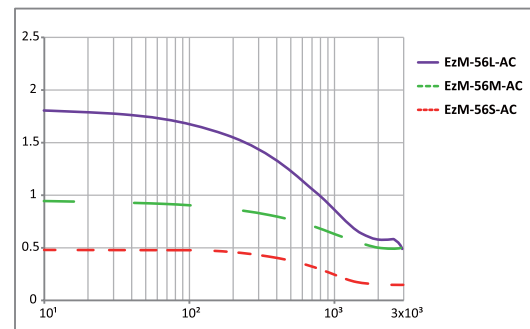
\* : There are 2 kinds size of front shaft diameter for EzM-56 series as  $\varnothing 6.35$  and  $\varnothing 8.0$ .

### EzM-56 series



※Measured Condition : Run Current = 100%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC

### EzM-56 series



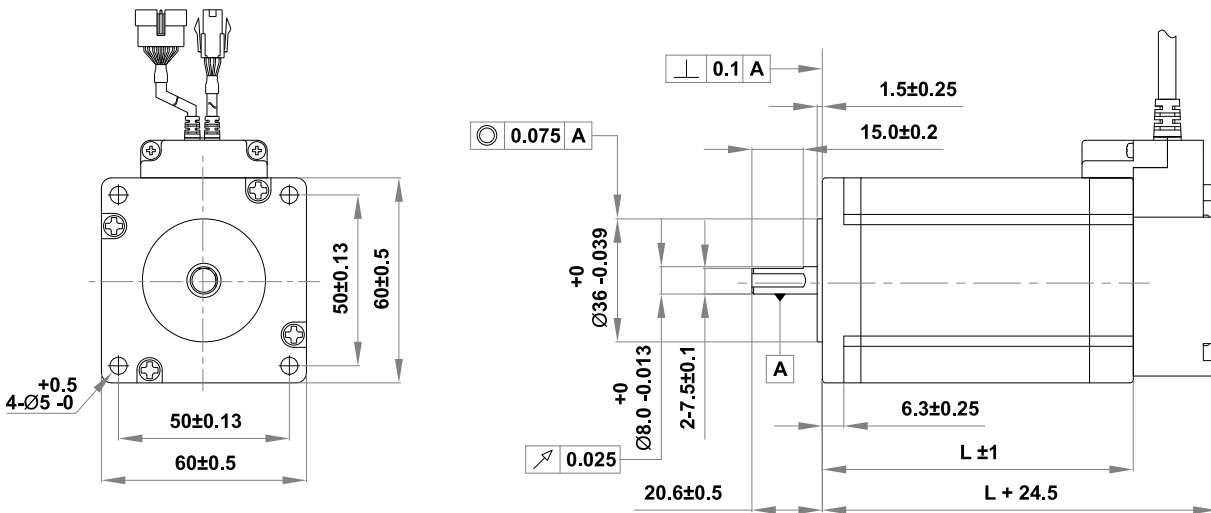
※Measured Condition : Run Current = 150%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC



## ● Motor Specifications

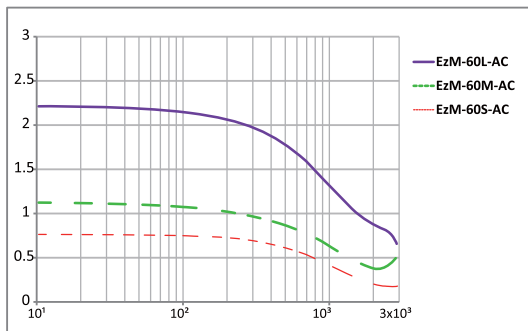
MODEL	UNIT	EzM-60M-3A-A EzM-60M-3A-B EzM-60M-3A-C	EzM-60M-3A-A EzM-60M-3A-B EzM-60M-3A-C	EzM-60L-3A-A EzM-60L-3A-B EzM-60L-3A-C
DRIVE METHOD	----	BI-POLAR	BI-POLAR	BI-POLAR
NUMBER OF PHASES	----	2	2	2
VOLTAGE	VDC	1,86	2,25	3,75
CURRENT per PHASE	A	3	3	3
RESISTANCE per PHASE	Ohm	0,62	0,75	1,25
INDUCTANCE per PHASE	mH	1,5	2,4	5,4
HOLDING TORQUE	N · m	1,0	1,5	3,0
ROTOR INERTIA	g · cm <sup>2</sup>	240	340	690
WEIGHTS	g	600	780	1400
LENGTH (L)	mm	48	57	87
ALLOWABLE OVERHUNG LOAD (DISTANCE FROM END OF SHAFT)	3mm	70	70	70
	8mm	87	87	87
	13mm	114	114	114
	18mm	165	165	165
ALLOWABLE THRUST LOAD	N	Lower than motor weight		
INSULATION RESISTANCE	MOhm	100min, (at 500VDC)		
INSULATION CLASS	----	CLASS B (130°C)		
OPERATING TEMPERATURE	°C	0 to 55		

## ● Motor Dimension [mm] and Torque Characteristics



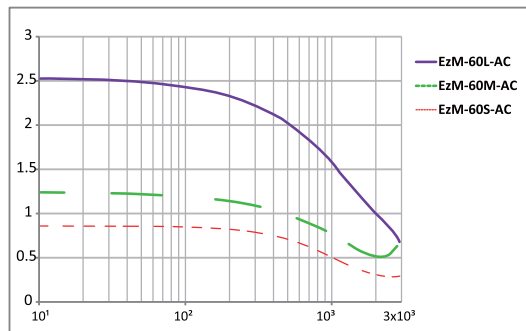
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**EzM-60 series**



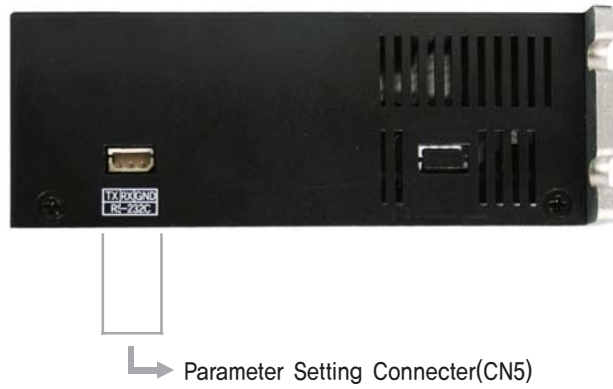
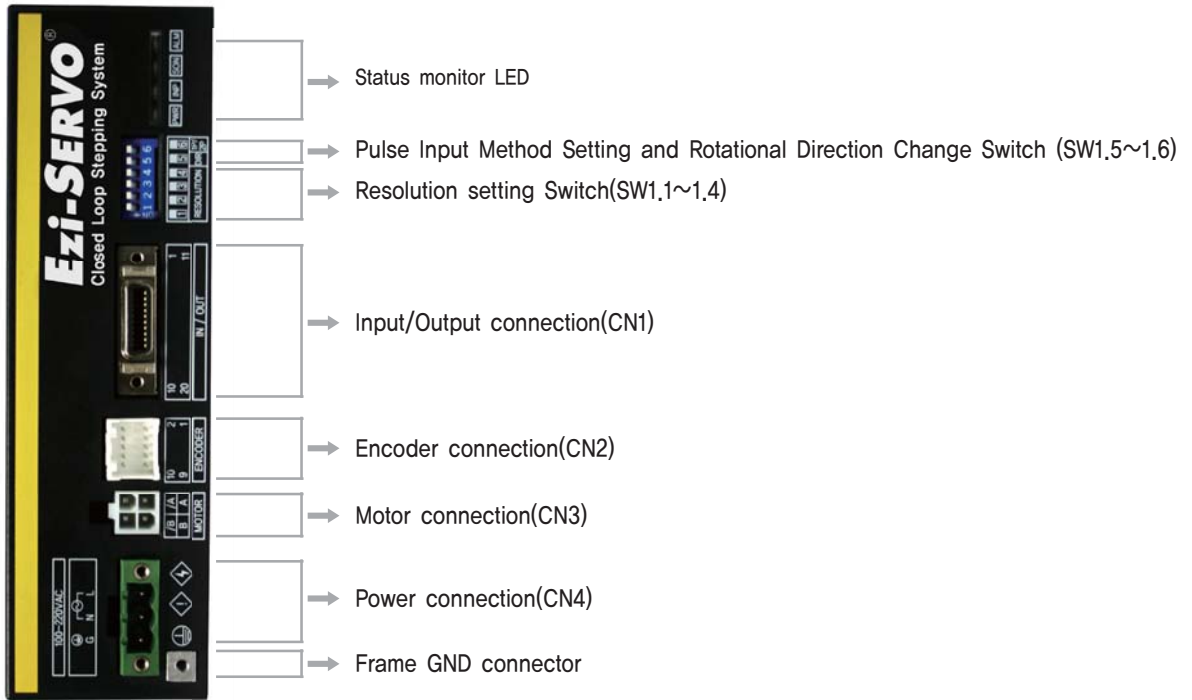
※Measured Condition : Run Current = 100%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC

**EzM-60 series**



※Measured Condition : Run Current = 150%  
 Motor Current = Rated Current  
 (Refer to Motor Specification)  
 Drive = Ezi-SERVO-ST-AC

## ● Setting and Operating



# 1. Status Monitor LED

Indication	Color	Function	ON/OFF Condition
PWR	Green	Power input indication	LED is turned ON when power is applied
INP	Yellow	Complete Positioning Motion	Lights On when Positioning error reaches within the preset pulse selected by rotary switch
SON	Orange	Servo On / Off Indication	Servo On : Lights On, Servo Off : Lights Off
ALM	Red	Alarm indication	Flash when protection function is activated (Identifiable which protection mode is activated by counting the blinking times)

\* Please refer to Page 17 for setting of Positioning Completion Signal [In-Position Value].

\* Default setting value is 0. (Able to change thru Parameter setting GUI program)

## ◆ Protection functions and LED flash times

Times	Protection	Conditions
1	Over Current Error	The current through power devices in inverter exceeds the limit value
2	Over Speed Error	Motor speed exceed 3,000rpm
3	Position Tracking Error	Position error value is higher than 90° in motor run state
4	Over Load Error	The motor is continuously operated more than 5 second 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 more high limit value
7	Motor Connect Error	The power is ON without connection of the motor cable to drive
8	Encoder Connect Error	Cable connection error with Encoder connector in drive
10	In-Position Error	After operation is finished, a position error occurs
12	ROM Error	Error occurs in parameter storage device(ROM)
15	Position Overflow Error	Position error value is higher than 90° in motor stop state



Alarm LED flash  
(ex : Position tracking error)

## 2. Resolution Selection Switch(SW1.1~1.4)

The number of pulse per revolution.

Position(SW1)				Pulse/Revolution	Position(SW1)				Pulse/Revolution
1	2	3	4		1	2	3	4	
ON	ON	ON	ON	500 or 20,000 or 32,000*1	OFF	ON	ON	ON	7,200
ON	ON	ON	OFF	500	OFF	ON	ON	OFF	10,000*2
ON	ON	OFF	ON	1,000	OFF	ON	OFF	ON	10,000
ON	ON	OFF	OFF	1,600	OFF	ON	OFF	OFF	10,000
ON	OFF	ON	ON	2,000	OFF	OFF	ON	ON	10,000
ON	OFF	ON	OFF	3,600	OFF	OFF	ON	OFF	10,000
ON	OFF	OFF	ON	5,000	OFF	OFF	OFF	ON	10,000
ON	OFF	OFF	OFF	6,400	OFF	OFF	OFF	OFF	10,000

\*1 : Position 'ON ON ON ON' resolution depends on type of encoder

\*2 : Default = 10,000

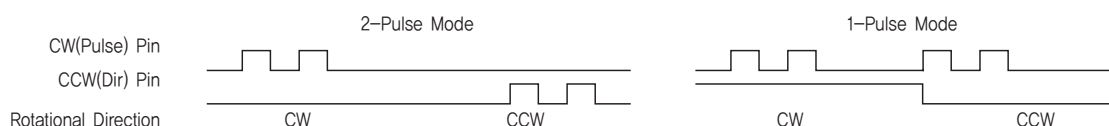
## 3. Rotational Direction Selection Switch(SW1.5)

Indication	Switch Name	Functions
DIR	Switching Rotational Direction	Based on CW(+Dir signal) input to driver. ON : CCW(-Direction) OFF : CW(+Direction) ※Default : CW mode



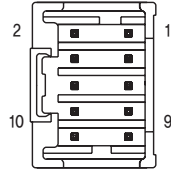
## 4. Pulse Input Selection Switch(SW1.6)

Indication	Switch Name	Functions
2P/1P	Selecting pulse input mode	Selectable 1-Pulse input mode or 2-Pulse input mode as Pulse input signal. ON : 1-Pulse mode OFF : 2-Pulse mode ※Default : 2-Pulse mode



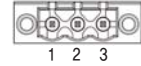
### 5. Encoder connection(CN2)

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



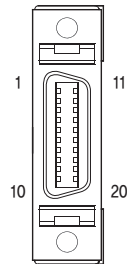
### 8. Power connection(CN4)

NO.	Function
1	EARTH
2	AC Input: N
3	AC Input: L



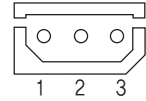
### 6. Input/Output Signal(CN1)

NO.	Function	I/O
1	CW+(Pulse+)	Input
2	CW-(Pulse-)	Input
3	CCW+(Dir+)	Input
4	CCW-(Dir-)	Input
5	A+	Output
6	A-	Output
7	B+	Output
8	B-	Output
9	Z+	Output
10	Z-	Output
11	Alarm	Output
12	In-Position	Output
13	Servo On/Off	Input
14	Alarm Reset	Input
15	Open Collector Input	Input
16	BRAKE+	Output
17	BRAKE-	Output
18	S-GND	Output
19	24VDC GND	Input
20	24VDC	Input



### 9. Parameter Connector(CN5)

NO.	Function	I/O
1	TX	Output
2	RX	Input
3	GND	---

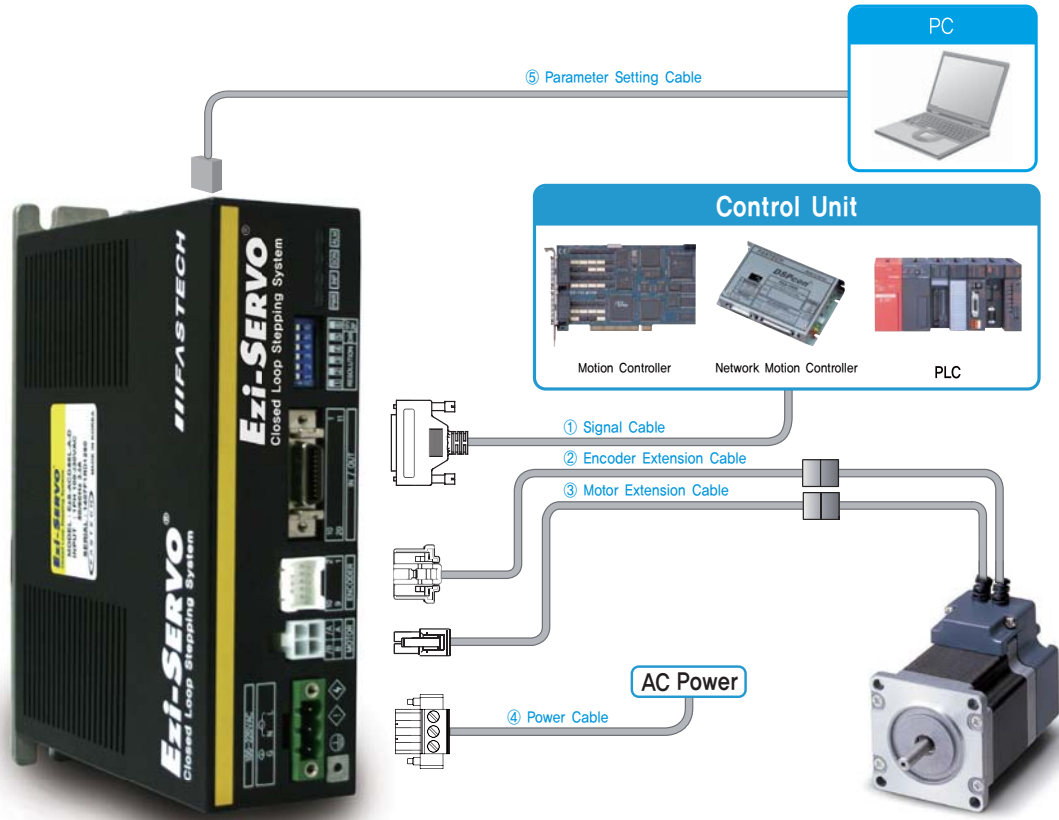


### 7. Motor connection(CN3)

NO.	Function
1	A Phase
2	B Phase
3	/A Phase
4	/B Phase



# System Configuration



Type	Signal Cable	Encoder Cable	Motor Cable	Parameter Setting Cable
Standard Length	–	30cm	30cm	–
Max. Length	20m	20m	20m	3m

## 1. Cable Option

### ① Signal Cable

Available to connect between Control System and Ezi-SERVO ST-AC.

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

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

### ② Encoder Extension Cable

Available to extended connection between Encoder and Ezi-SERVO ST-AC.

Item	Length[m]	Remark
CSVO-E-□□□F	□□□	Normal Cable
CSVO-E-□□□M	□□□	Robot Cable

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

### ③ Motor Extension Cable

Available to extended connection between motor and Ezi-SERVO ST-AC.

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

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

### ④ Parameter Setting Cable

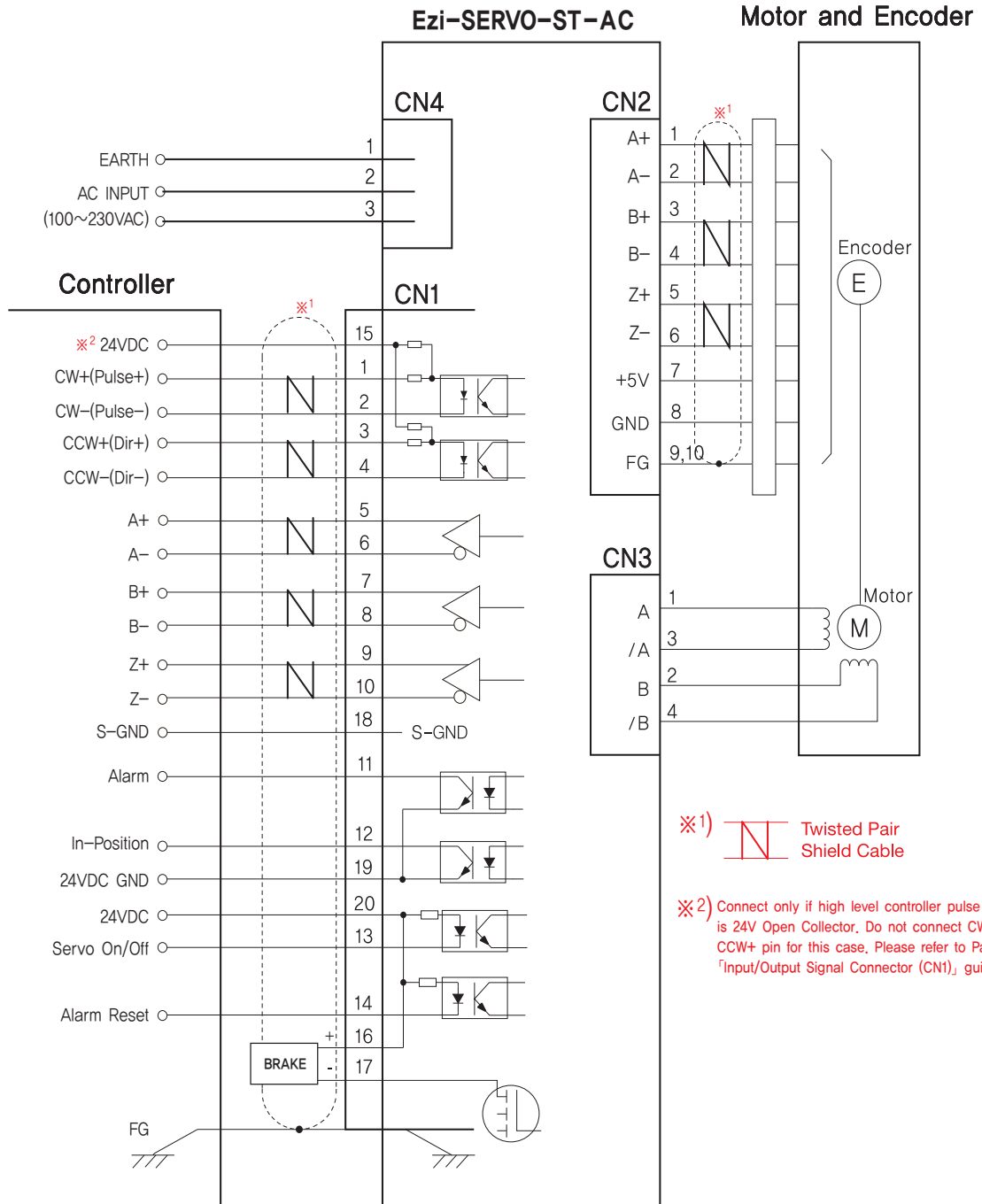
Available to connect between Computer and Ezi-SERVO ST-AC.

Item	Length[m]	Remark
CBTS-C-□□□F	□□□	Normal Cable

□ is for Cable Length. The unit is 1m and Max. 3m length.

# External Wiring Diagram

FASTECH Ezi-SERVO ST-AC



· Please check if all input power for high level controller and Ezi-SERVO-ST-AC drive is OFF once tries to connect I/O cable between Drive and high level controller,

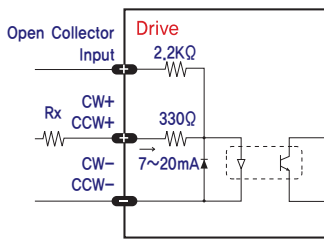
· Please use robot cable once motor equipped at operational part. If not, cables can be short.

# Control Signal Input/Output Description

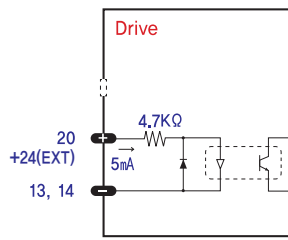
## 1 Input Signal

Input signals of the drive are all photocoupler protected. The signal shows the status of internal photocouplers [ON: conduction], [OFF: Non-conduction], not displaying the voltage levels of the signal.

Open Collector Input(Pin:15)  
CCW+(Pin:1,3) CCW-(Pin:2,4)



Alarm Reset(Pin:14)  
Servo On/Off(Pin:13)



### ◆ Servo On/Off Input

This input can be used only to adjust the position by manually moving the motor shaft from the load-side. By setting the signal [ON], the driver cuts off the power supply to the motor. Then, one can manually adjust output position. When setting the signal back to [OFF], the driver resumes the power to the motor and recovers the holding torque. When driving a motor, one needs to set the signal [OFF].

### ◆ Alarm Reset Input

When a protection mode has been activated, a signal to this alarm reset input cancels the Alarm output.

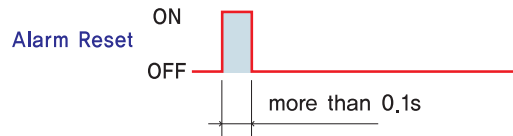
### ◆ CW, CCW Input

This signal can be used to receive a positioning pulse command from a user host motion controller. The user can select 1-pulse input mode or 2-pulse input mode (refer to switch No.1, SW1).

The input schematic of CW, CCW is designed for 5V TTL level. When using 5V level as an input signal, the resistor Rx is not used and connect to the driver directly.

When the level of input signal is more than 5V, Rx resistor is required. If the resistor is absent, the drive will be damaged!

If the input signal level is 12V, Rx value is 680ohm and 24V, Rx value is 1.8Kohm.

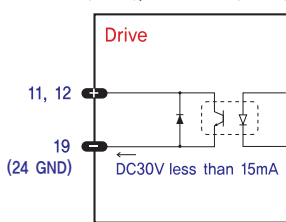


※ By setting the alarm reset input signal [ON], cancel the Alarm output. Before cancel the Alarm output, have to remove the source of alarm.

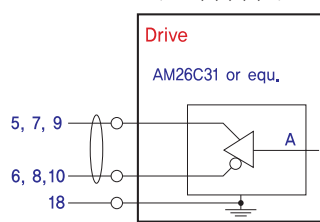
## 2 Output Signal

Output signals from the driver are photocoupler protected: Alarm, In-Position and the Line Driver Outputs (encoder signal). In the case of photocoupler outputs, the signal indicates the status of internal photocouplers [ON: conduction], [OFF: Non-conduction], not displaying the voltage levels of the signal.

Alarm(Pin:11), In-Position(Pin:12)

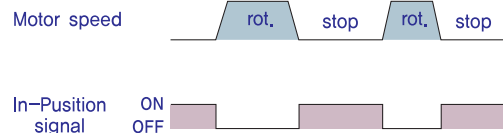


Encoder signal  
(Pin:5,6,7,8,9,10)



### ◆ In-Position Output

In-Position signal is [ON] when positioning is completed. This signal is [ON] when the motor position error is within the value set by the switch SW4.



### ◆ Alarm Output

The Alarm output indicates [ON] when the driver is in a normal operation. If a protection mode has been activated, it goes [OFF]. A host controller needs to detect this signal and stop sending a motor driving command. When the driver detects an abnormal operation such as overload or over current of the motor, it sets the Alarm output to [OFF], flashes the Alarm LED, disconnect the power to a motor and stops the motor simultaneously.

[Caution] Only at the Alarm output port, the photocoupler isolation is in reverse. When the driver is in normal operation the Alarm output is [ON]. On the contrary when the driver is in abnormal operation that start protection mode, the Alarm output is [OFF].

### ◆ Encoder Signal Output

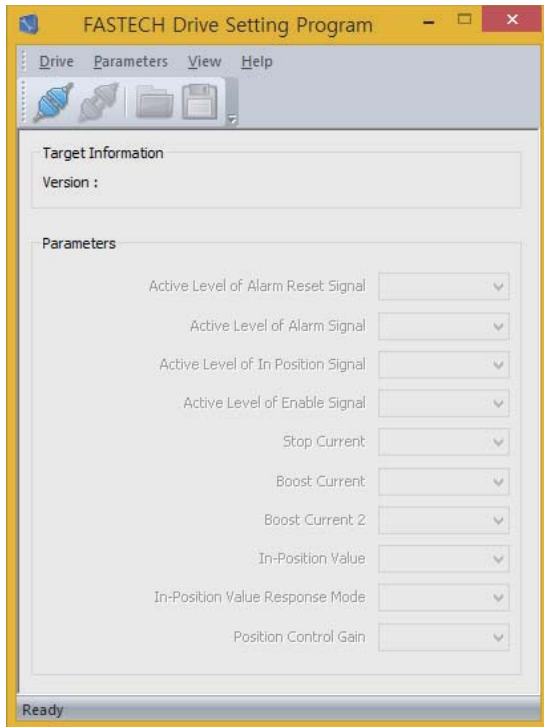
The encoder signal is a line driver output. This can be used to confirm the stop position.

## ● Parameter Setting GUI [User Interface]

Ezi-SERVO ST-AC driver utilizes various parameters for operation. Some parameters need to be adjusted once users feel inconvenience to use or in order to maximize efficiency. Ezi-SERVO-ST-AC provides parameter modification program for convenience of product usage for users.

The screen shot as below is computer program (GUI) which used for operation process. Users can change and set the parameters of drive for Enable Level, Alarm Reset Level, In-Position Level, Alarm Output Level. Users can use Ezi-SERVO ST-AC according to its own system.

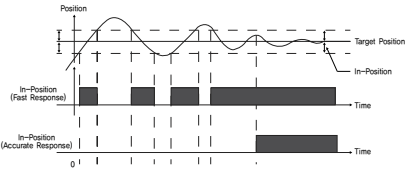
Please connect parameter setting GUI when Ezi-SERVO ST-AC is Disable state. For safety reason, Ezi-SERVO ST-AC can not be connected to setting GUI when it is Enable state.



- \* Parameter setting program (GUI) can be downloaded from website ([www.fastech.co.kr](http://www.fastech.co.kr)).
- \* Parameter setting program (GUI) support Windows XP, VISTA, 7, 8,1 (32,64bit).
- \* Parameter setting program (GUI) can be updated without warning to increase performance and convenience of user.
- \* FASTECH Drive Setting Program enables setting for Parameters of Ezi-SERVO-ST-AC and S-SERVO.



The content below is a description of the function for the parameter. Please refer to the attached sheet when set the parameters. The input and output terminal of drive are all photocoupler. The signal shows the status of internal photocouplers [ON: conduction], [OFF: Non-conduction], not displaying the voltage levels of the signal.

Parameters	The Initial Value	Range	Function
Active Level of Alarm Reset Signal	High	Low, High	Set the level of input signal of Alarm Reset. When set it to High and input of Alarm Reset is [ON], the Alarm output will be offed.
Active Level of Alarm Signal	Low	Low, High	Set the level of output signal of Alarm Reset. When set it to Low, the Alarm output is [ON] when normal state, and the Alarm output is [OFF] when protection function is operated.
Active Level of In Position Signal	High	Low, High	Set the level of output signal of In-Position. When set it to High, In-Position output after completion of motor movement, output become [ON]
Active Level of Enable Signal	High	Low, High	Set the level of input signal of Enable input. When set it to High, if Enable input is [ON], drive will stop to power supply to the motor.
Stop Current	50%	20%~100%	Stop Current means motor current which is set automatically after 0.1 seconds of motor is stopped. This parameter is used for reduce the temperature when the motor is stopped for a long time. The motor temperature can rises If set the Stop Current more than 60%.
Run Current	100%	50%~150%	Run Current is value of the current through the motor, while motor is operating (rotating), and it is set based on Rated Current of the motor. Run Current value is related to torque while motor is operating (rotating). If Run Current value is high, torque value also become higher while motor is operating (rotating). Therefore, if it is determined as lack of torque while motor is operating (rotating), torque value while motor is operating (rotating) can be raised by increasing the value of Run Current Parameter. Warning) 1) If Run Current value is high, also the motor temperature can be increased, so please be aware. 2) The maximum setting value (150%) of Run Current is limited to the 4A. Therefore, if rated current value of motor exceeds 2.7A (55mm, 60mm), Run Current value cannot be increased by raise the Run Current value. 3) In case of Ezi-SERVO-ST-AC, Run Current is automatically adjusted according to the load. Therefore, please raise the Run Current only in case of lack of operating torque.
In-Position Value	0pulse	0~63pulse	It shows output conditions of positioning complete signal. In-Position output signal is generated when the pulse number of positional error is lower than selected In-position value set by this switch after positioning command is executed.
In-Position Value Response Mode	Fast	Fast, Accurate	It shows output conditions of positioning complete signal. 
Position Control Gain	3	0~63	When the motor is stopping, it is used to adjust the response of motor according to load mounted on the motor. This value is not the actual value that used inside of drive, it is relative value. For example, if the value is changed from 3 to 6, it does not mean response time will be doubled. If value of this parameter is small, the motion of stopping of motor is become sensitive, and takes less time to stop. If value of this parameter is large, the motion of stopping of motor is become insensitive, and takes more time to stop. In the normal conditions, use the factory default value. Especially, if the load of inertia moment is greater than the motor so motor cannot stop normally, normal operation is possible by increasing the value of this parameter.

# MEMO

FASTECH Ezi-SERVO ST · AC

**MEMO**



*Fast, Accurate, Smooth Motion*

**FASTECH Co., Ltd.**

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