

# Ezi-Robo<sup>®</sup>

Motorized Actuators Driven by Ezi-SERVO

- Precision Mono Stage
- High Rigidity
- Compact Structure
- High Accuracy
- High Speed
- Easy to Use

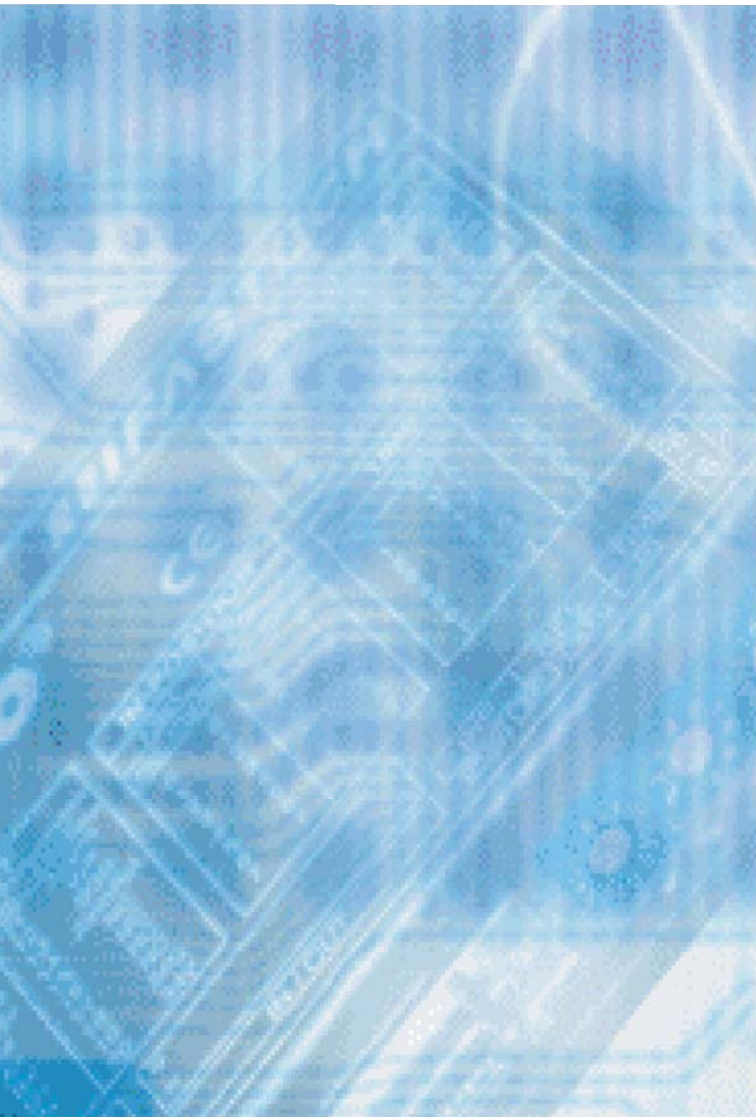
**MS**





# Ezi-Robo<sup>®</sup> MS

Motorized Actuators Driven by Ezi-SERVO

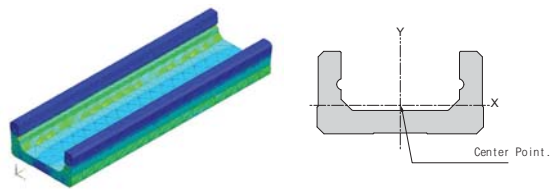


## ● Characteristic

Ezi-Robo MS Series is a high performance of electric linear actuator combines between PMI' s high rigidity structured of KM-type actuator which is LM Guide and Ball Screw are integrated into U-shaped steel frame and Ezi-SERVO, high-speed and accuracy of closed-loop stepping motor control system to maximize the convenience of the user.

### 1 High Rigidity

This is high rigidity of actuator based on U-shaped rail is designed to maintain the optimal balance between light weight and high strength by the optimal FEM analysis.



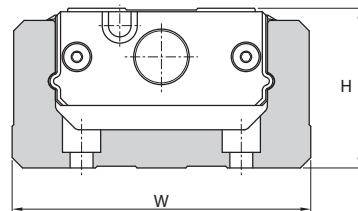
Unit : mm<sup>4</sup>

Model Number	I <sub>x</sub>	I <sub>y</sub>
MS 26	1,6×10 <sup>4</sup>	1,5×10 <sup>5</sup>
MS 30	4,4×10 <sup>4</sup>	3,3×10 <sup>5</sup>
MS 33	6,1×10 <sup>4</sup>	3,8×10 <sup>5</sup>
MS 45	1,5×10 <sup>5</sup>	1,1×10 <sup>6</sup>
MS 46	2,5×10 <sup>5</sup>	1,6×10 <sup>6</sup>
MS 55	2,3×10 <sup>5</sup>	2,3×10 <sup>6</sup>

\* I<sub>x</sub> : X-axis rotation cross section secondary moment,  
I<sub>y</sub> : Y-axis rotation cross section secondary moment.

### 2 Compact Structure

It is able to take an advantage for using Maximum space by the design that carriage and ball screw nut of the LM guide are integrated into carriage nut

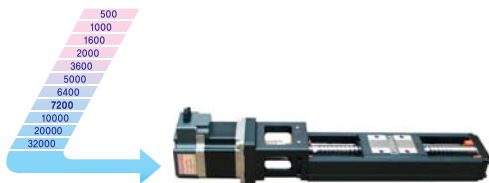


Unit : mm

Model Number	H	W
MS 26	26	50
MS 30	30	60
MS 33	33	60
MS 45	45	80
MS 46	46	86
MS 55	55	100

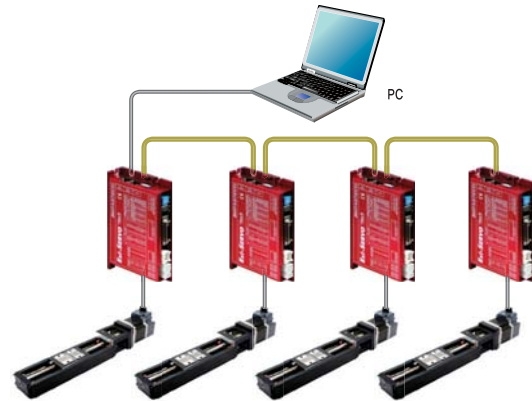
### 3 High Precision

It designed to transport and support carriage nut to make Ball of the carriage nut will contact with gothic-arch shaped two lines' groove at 45 degrees so can evenly support load from top and bottom, left and right and can be attached with actuator in any direction, also soft, high-speed operation with high precision against instantaneous load variation by stable manufacturing technology. High precision of position control is available by high resolution of encoder.(resolution up to Max, 32,000 ppr)



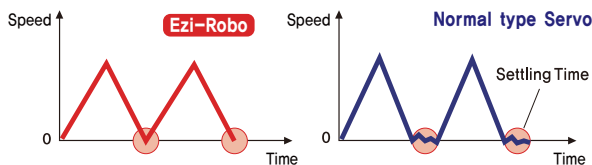
### 6 Network Based Motion Control

A Maximum of 16 axes can be operated from a PC through RS-485 communication. All of the motion conditions are set through the network and saved in Flash ROM as a parameter. Motion Library (DLL) is provided for programming under Windows 2000/XP.



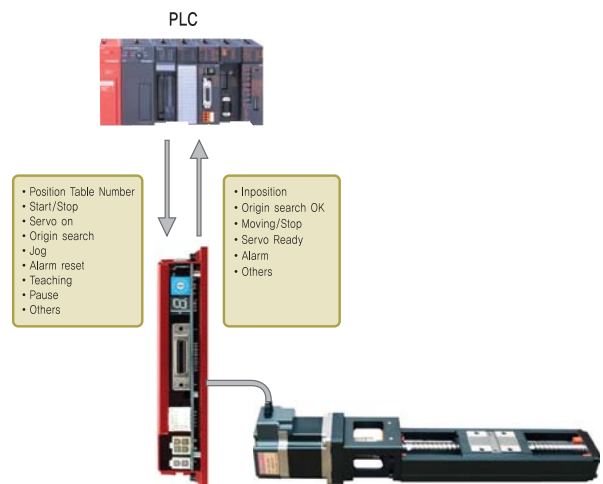
### 4 Fast Response

High rigidity of actuator fixed to the closed loop stepping control system, Ezi-SERVO can shorten positioning time.



### 7 Position Table Function

Position Table can be used for motion control by digital input and output signals of host controller. User can operate the motor directly by sending the position table number, start/stop, origin search and other digital input values from a PLC. The PLC can monitor the In-Position, origin search, moving/stop, servo ready and other digital output signals from a drive. A maximum of 256 positioning points can be set from PLC.



### 5 Variety of Controller with High Performance and Multi-Tasking

Ezi-SERVO, high performance closed loop stepping control system by adopting pulse train input drives and controller integrated drives are possible to use.



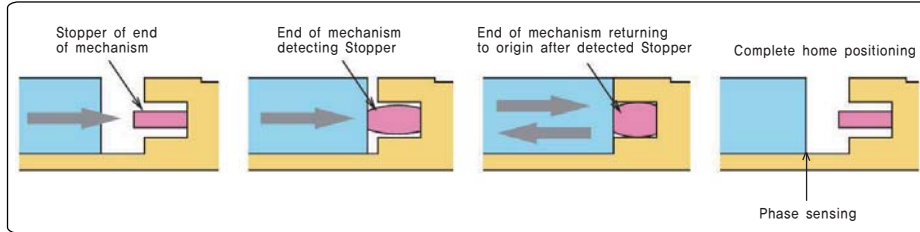
Pulse input drive.



Controller Embedded Drive  
(Enable to operate Multi-Axes based on network)

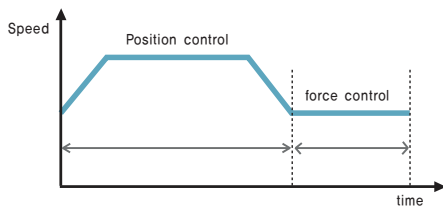
## 8 High-Speed of Sensorless Origin

Homing Sensorless parts of the bodies ended after detecting contact with the encoder on the Z-based homing function is possible. Therefore regardless of aging deterioration of stopper mounted on the end of mechanism and origin return speed, it always enables reliable high speed and accuracy of origin.



## 9 Force Control Function

By holding a constant force and leep pressing Rod onto a Work as same as Air Cylinder and pressing power can be set freely by parameter. In other words Fastech Ezi-Robo MS Series offers powerful and convenient force control without an external sensor. Also the position control mode to force control switching, power control can be converted to the position control and position control for the conversion of the control algorithm to minimize changes to the mechanical part of the mount to minimize the impact.



## 10 Extensive Input/Output Signals and User-Defined Functions

Input 9 points / 9 points signal output according to the needs of users can be defined. Therefore, various functions depending on the needs of the user input/output wiring must be used without changing.

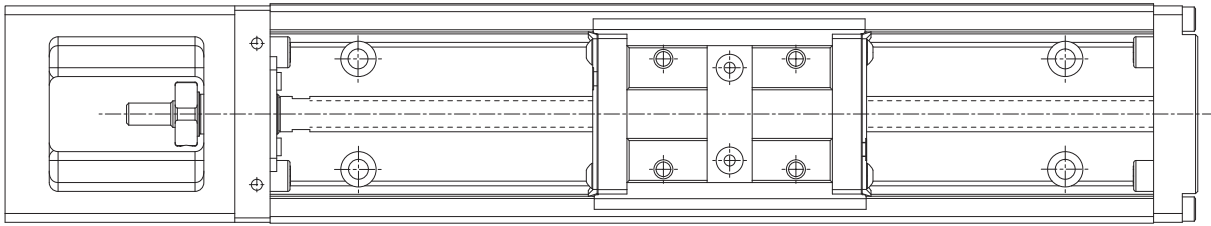
## Ezi-Robo MS Series Part Numbering

**MS 26 - 06 - A 400 - P + ST - 56L - B - L + 0 - 0**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

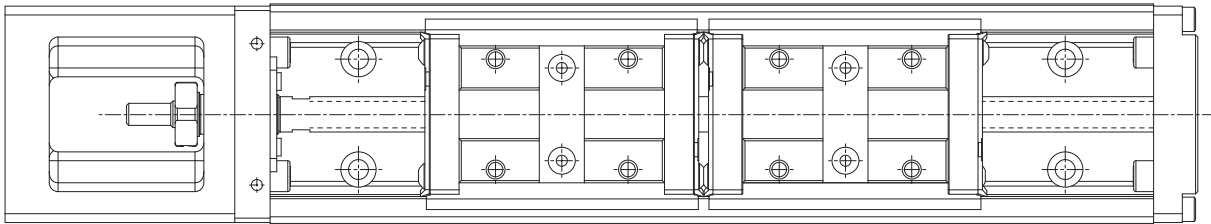
①	Series Name	MS : MS (Mono Stage) Series		
②	Name of Part Numbering	26: Height H 26mm	30: Height H 30mm	33: Height H 33mm
		45: Height H 45mm	46: Height H 46mm	55: Height H 55mm
③	Ball Screw Lead	05: 5mm, 06: 6mm, 10: 10mm, 20: 20mm		
④	(Carriage-Nut Type)	A : 1 Block, Standard length		B : 2 Block, Standard length
		C : 1 Short Block, Standard length		D : 2 Short Block, Standard length
⑤	Rail length	150 : 150mm ~ 1380 : 1380mm		
⑥	Precision Grades	N : Standard Grade	H : Upper grade	P : Precision grade
⑦	Drive	ST : Pulse train input standard type		MI : Pulse train input mini type
		PR : Controller embedded standard type		MIPR : Controller embedded mini type
⑧	Motor size/length	42XL : 42mm /Extra Large	56L : 56mm/Large	86M : 86mm/Middle
⑨	Electromagnetic Brake	N : No brake		B : Electric Brake is attached
⑩	Motor cable withdrawal direction	L : Left (standard)	R : Right	U : upside D : down side
⑪	Cover option	0 : No cover		1 : Cover is attached 2 : Bellows is attached
⑫	Sensor option	Please see option page in this catalog		

## ● Carriage-Nut Type

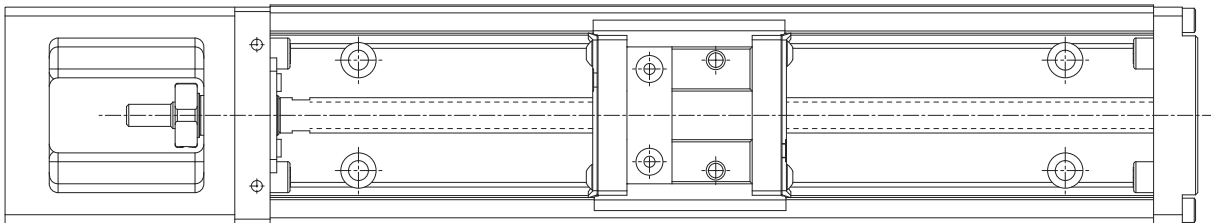
A Type : 1 block : Standard length



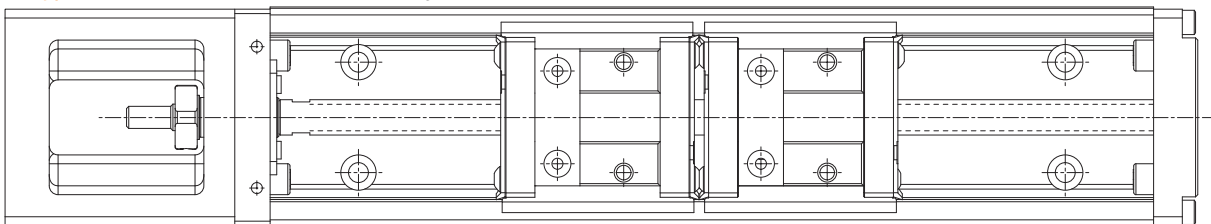
B Type : 2 block : Standard length



C Type\* : 1 Short block : Standard length

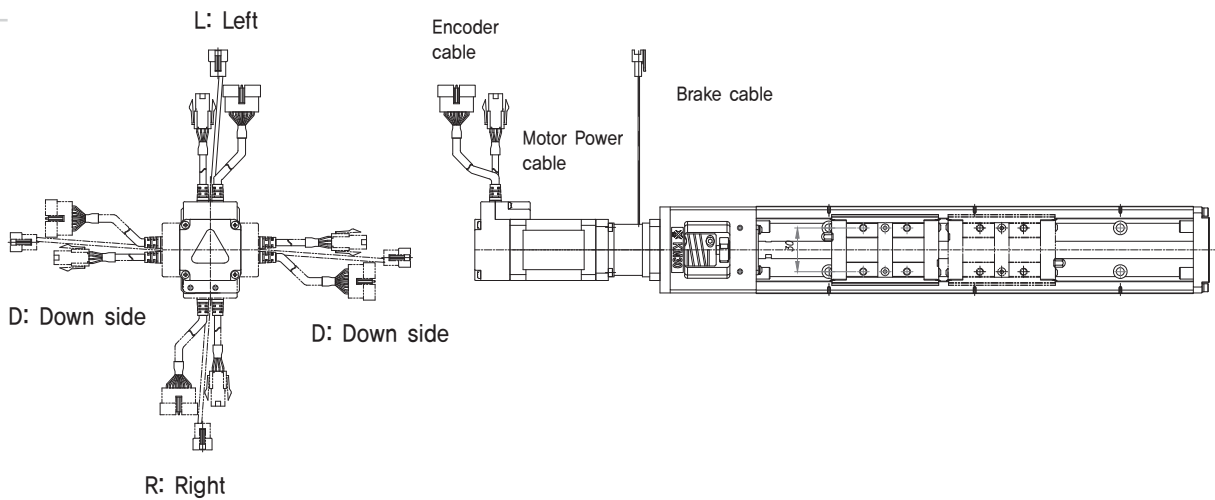


D Type\* : 2 Short block : Standard length



\* C, D Type will be supported only with MS30, MS4510, MS4610.

## ● Motor Cable, Brake Cable Withdrawal Direction



## ● Load Ratings

Name of Part Numbering		Part of Linear Guide way				Ball Screw Unit							
		Standard dynamic load rating C (kN)		Standard Static load rating Co (kN)		Standard dynamic load rating Ca (kN)		Standard Static load rating Coa (kN)		Shaft diameter (mm)	Lead (mm)	Root diameter (mm)	Ball Center diameter (mm)
		Carriage-Nut Type				Standard N	Precision grade, Upper grade H,P	Standard N	Precision grade, Upper grade H,P				
		A,B	C,D	A,B	C,D								
MS 26	MS 26 02	7,99	-	15,23	-	1,79	2,50	2,94	4,02	8	2	6,6	8,3
	MS 26 06					0,88	1,18	1,18	1,67		6		
MS 30	MS 30 05	12,21	7,91	22,11	11,90	2,25	2,94	4,31	5,10	12	5	10,3	12,4
	MS 30 10					2,16	2,84	3,72	4,51		10	9,9	
MS 33	MS 33 05	12,21	7,91	22,11	11,90	2,25	2,94	4,31	5,10	12	5	10,3	12,4
	MS 33 10					2,16	2,84	3,72	4,51		10	9,9	
MS 45	MS 45 10	26,35	16,26	46,65	23,33	5,00	6,66	8,92	11,86	15	10	12,3	15,6
	MS 45 20		-		-	3,72	5,00	6,37	8,53		20		
MS 46	MS 46 10	26,35	16,26	46,65	23,33	5,00	6,66	8,92	11,86	15	10	12,3	15,6
	MS 46 20		-		-	3,72	5,00	6,37	8,53		20		
MS 55 20		36,73	-	65,29	-	4,61	6,08	9,11	12,15	20	20	17,3	20,6

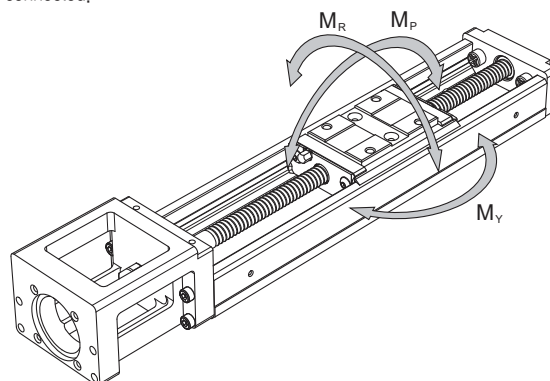


Unit : N · m

## ● Static Permissible Moment

Name of Part Numbering		Static Permissible Moment											
		$M_p$				$M_y$				$M_R$			
		Carriage-Nut Type				Carriage-Nut Type				Carriage-Nut Type			
		A	B	C	D	A	B	C	D	A	B	C	D
MS 26	MS 26 02	107,3	501,8	-	-	107,3	501,8	-	-	278,6	557,3	-	-
	MS 26 06												
MS 30	MS 30 05	156,6	858,5	43,8	326,4	156,6	858,5	43,8	326,4	462,0	924,0	248,8	497,6
	MS 30 10												
MS 33	MS 33 05	156,6	858,5	43,8	326,4	156,6	858,5	43,8	326,4	462,0	924,0	248,8	497,6
	MS 33 10												
MS 45	MS 45 10	575,0	2678,0	120,0	1245,6	575,0	2678,0	120,0	1245,6	1334,2	2668,5	762,4	1524,8
	MS 45 20			-	-			-	-			-	
MS 46	MS 46 10	575,0	2678,0	120,0	1245,6	575,0	2678,0	120,0	1245,6	1397,9	2795,8	798,8	1597,6
	MS 46 20			-	-			-	-			-	-
MS 55 20		858,4	4617,2	-	-	858,4	4617,2	-	-	2347,2	4694,4	-	-

\* B and D type is figures when 2 blocks connected.



## ● Accuracy Grade

Name of Part Numbering	Rail Length (mm)	Positioning Repeatability (mm)			Positioning Accuracy (mm)			Running Parallelism (mm)			Backlash (mm)			The Starting Torque (N · m)							
		Standard	Upper grade	Precision grade	Standard	Upper grade	Precision grade	Standard	Upper grade	Precision grade	Standard	Upper grade	Precision grade	Standard	Upper grade	Precision grade					
		N	H	P	N	H	P	N	H	P	N	H	P	N	H	P					
MS 26	150	±0,01	±0,005	±0,003	-	0,06	0,02	-	0,025	0,01	0,02	0,01	0,003	2	1,5	4					
	200																				
	250																				
	300																				
MS 30	150	±0,01	±0,005	±0,003	-	0,06	0,02	-	0,025	0,01	0,02	0,02	0,003	7	7	15					
	200																				
	300																				
	400					0,1	0,025		0,035	0,015											
	500																				
600																					
MS 33	150	±0,01	±0,005	±0,003	-	0,06	0,02	-	0,025	0,01	0,02	0,02	0,003	7	7	15					
	200																				
	300																				
	400					0,1	0,025		0,035	0,015											
	500																				
600																					
MS 45	340	±0,01	±0,005	±0,003	-	0,01	0,025	-	0,035	0,015	0,02	0,02	0,003	10	10	15					
	440					0,12	0,03									0,04	0,02	-	-		
	540			0,15					-	0,05										-	-
	640																				
	740			-		-	-		-	-											
940	-	-	-	-	-																
MS 46	340	±0,01	±0,005	±0,003	-	0,01	0,025	-	0,035	0,015	0,02	0,02	0,003	10	10	15					
	440					0,12	0,03									0,04	0,02	-	-		
	540			0,15					-	0,05										-	-
	640																				
	740			-		-	-		-	-											
940	-	-	-	-	-																
MS 55	980	±0,01	±0,005	±0,005	-	0,18	0,035	-	0,05	0,025	0,05	0,05	0,003	12	12	17					
	1080					0,25	0,04									0,03	-	-			
	1180			0,25					-	-									-	-	
	1280																				-
	1380			-		-	-		-	-											



## ● Maximum Travel Speed & Maximum Length

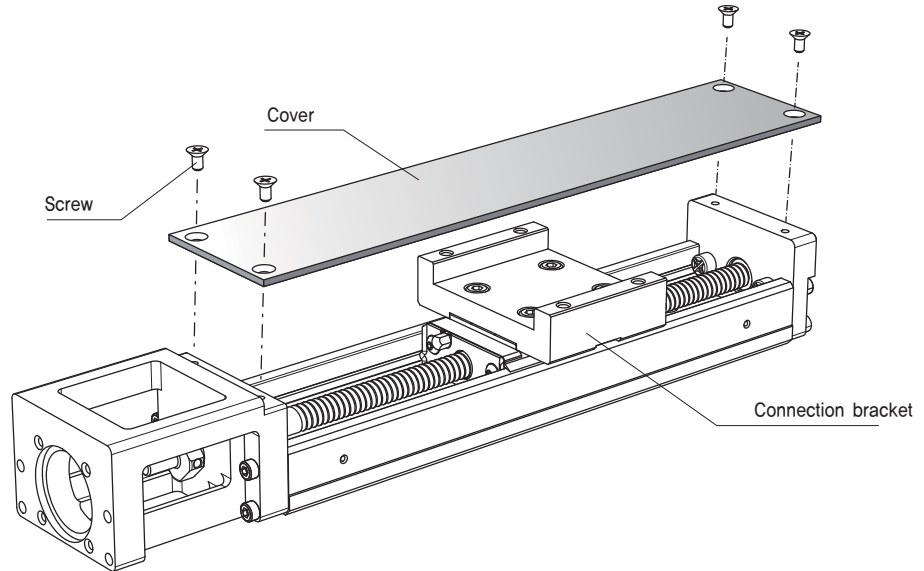
Maximum travel speed on the below table is assumed as the capacity of the motor is large enough, and regardless of DN value, it is limited by the Critical Speed of Ball Screw.

Name of Part Numbering	Ball Screw Lead (mm)	Rail Length (mm)	Maximum Travel Speed (mm/s)			Maximum Length of Manufacturing (mm)		
			Standard	Upper grade	Precision grade	Standard	Upper grade	Precision grade
			N	H	P	N	H	P
MS 26	2	150	280	280	280	300	300	300
		200						
		250						
		300						
	6	150	590	590	830	300	300	300
		200						
		250						
		300						
MS 30	5	150	390	390	550	600	600	600
		200						
		300						
		400						
		500						
		600						
	10	150	790	790	1100	600	600	600
		200						
		300						
		400			980			
		500						
		600						
MS 33	5	150	390	390	550	600	600	600
		200						
		300						
		400						
		500						
		600						
	10	150	790	790	1100	600	600	600
		200						
		300						
		400			980			
		500						
		600						
MS 45	10	340	520	520	740	940	940	740
		440						
		540						
		640			730			
		740						
		940						
	20	340	1050	1050	1480	940	940	740
		440						
		540						
		640			1440			
		740						
		940						
MS 46	10	340	520	520	740	940	940	740
		440						
		540						
		640			730			
		740						
		940						
	20	340	1050	1050	1480	940	940	740
		440						
		540						
		640			1440			
		740						
		940						
MS 55	20	980	800	800	1120	1380	1380	1180
		1080			900			
		1180			740			
		1280			620			
		1380			620			
					530			

## ● Options

### Cover

Cover of MS Series can be purchased as an option. Please refer to the page indicated the dimensions of each model to find details of cover dimensions.



### Bellows

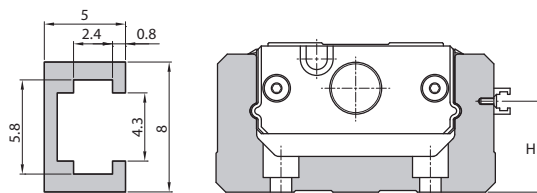
This is optional choice so please request Fastech for detail information.

### Sensor

MS Series of sensor is optional choice so please refer to below table.

Indicate	Type	Part Numbering	Accessories
0	None	-	-
1	with Sensor rail (3 units)	-	Mounting Screw
2	Photo sensor (3 units)	EE-SX671 (Omron)	Mounting Screw/ Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)
3	Photo sensor (3 units)	EE-SX674 (Omron)	Mounting Screw/ Nut, Detecting Plate, Sensor Rail, Mounting Plate, Connector (EE-1001)

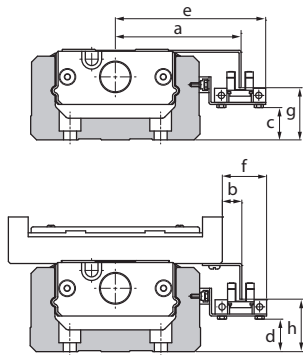
### Sensor Rail Length



Unit : mm

Name of Part Numbering	H
MS26	12
MS30	14
MS33	15
MS45	19
MS46	28
MS55	27

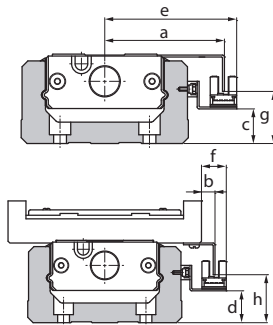
## Sensor Mounting Dimension



Omron EE-SX671

Unit : mm

Name of Part Numbering	a	b	c	d	e	f	g	h
MS26	46,0	15,0	2,0	2,0	58,5	27,5	10,5	10,5
MS30	50,9	10,9	3,8	3,8	63,4	23,4	11,5	11,5
MS33	50,9	7,9	5,0	5,0	63,4	20,4	13,5	13,5
MS45	60,9	8,7	8,8	8,8	73,4	21,4	17,3	17,3
MS46	63,9	7,9	18,0	18,0	76,4	20,4	26,5	26,5
MS55	70,8	8,8	17,0	17,0	83,3	21,3	25,5	25,5



Omron EE-SX674

Unit : mm

Name of Part Numbering	a	b	c	d	e	f	g	h
MS26	43,7	12,7	1,8	1,8	50,0	19,0	10,8	10,8
MS30	48,6	8,6	3,6	3,6	54,9	14,9	11,8	11,8
MS33	48,6	5,6	4,8	4,8	54,9	11,9	13,8	13,8
MS45	58,6	6,6	8,8	8,8	64,9	12,9	17,8	17,8
MS46	61,6	5,6	17,8	17,8	67,9	11,9	26,8	26,8
MS55	68,5	6,5	16,8	16,8	74,8	12,8	25,8	25,8

## ● Variety of Ezi-Robo MS Series

### MS26 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake		
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		N	B	
MS26	02 (2mm)	A	150	N	H	P	ST	PR	MI	MIPR	EzM-42XL	N	B	
			200	N	H	P	ST	PR	MI	MIPR		N	B	
			250	N	H	P	ST	PR	MI	MIPR		N	B	
			300	N	H	P	ST	PR	MI	MIPR		N	B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	N	H	P	ST	PR	MI	MIPR	EzM-42XL	N	B	
			250	N	H	P	ST	PR	MI	MIPR		N	B	
			300	N	H	P	ST	PR	MI	MIPR		N	B	
	06 (6mm)	A	150	N	H	P	ST	PR	MI	MIPR		EzM-42XL	N	B
			200	N	H	P	ST	PR	MI	MIPR	N		B	
			250	N	H	P	ST	PR	MI	MIPR	N		B	
			300	N	H	P	ST	PR	MI	MIPR	N		B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	N	H	P	ST	PR	MI	MIPR	EzM-42XL	N	B	
			250	N	H	P	ST	PR	MI	MIPR		N	B	
			300	N	H	P	ST	PR	MI	MIPR		N	B	

\* If you want purchase MS26 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-42XL, please contact directly to head office of Fastech.

## MS30 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake		
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		None	Attachment	
MS30	05 (5mm)	A	150	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	-	-	-	-	-	-	-	-	-	-	-
			300	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		C	150	N	H	P	ST	PR	-	-		EzM-42XL	N	B
			200	N	H	P	ST	PR	-	-			N	B
			300	N	H	P	ST	PR	-	-	N		B	
			400	N	H	P	ST	PR	-	-	N		B	
			500	N	H	P	ST	PR	-	-	N		B	
			600	N	H	P	ST	PR	-	-	N		B	
		D	150	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
	10 (10mm)	A	150	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	-	-	-	-	-	-	-	-	-	-	-
			300	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		C	150	N	H	P	ST	PR	-	-		EzM-42XL	N	B
			200	N	H	P	ST	PR	-	-			N	B
			300	N	H	P	ST	PR	-	-	N		B	
			400	N	H	P	ST	PR	-	-	N		B	
			500	N	H	P	ST	PR	-	-	N		B	
			600	N	H	P	ST	PR	-	-	N		B	
		D	150	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	

\* If you want purchase MS30 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-42XL, please contact directly to head office of Fastech

## MS33 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake		
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		None	Attachment	
MS33	05 (5mm)	A	150	N	H	P	ST	PR	-	-	EzM-56L	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	-	-	-	-	-	-	-	-	-	-	-
			300	N	H	P	ST	PR	-	-	EzM-56L	N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		C	150	N	H	P	ST	PR	-	-		EzM-56L	N	B
			200	N	H	P	ST	PR	-	-			N	B
			300	N	H	P	ST	PR	-	-	N		B	
			400	N	H	P	ST	PR	-	-	N		B	
			500	N	H	P	ST	PR	-	-	N		B	
			600	N	H	P	ST	PR	-	-	N		B	
		D	150	N	H	P	ST	PR	-	-	EzM-56L	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
	10 (10mm)	A	150	N	H	P	ST	PR	-	-	EzM-56L	-	-	
			200	N	H	P	ST	PR	-	-		-	-	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		B	150	-	-	-	-	-	-	-	-	-	-	-
			200	-	-	-	-	-	-	-	-	-	-	-
			300	N	H	P	ST	PR	-	-	EzM-56L	N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	
		C	150	N	H	P	ST	PR	-	-		EzM-42XL	N	B
			200	N	H	P	ST	PR	-	-			N	B
			300	N	H	P	ST	PR	-	-	N		B	
			400	N	H	P	ST	PR	-	-	N		B	
			500	N	H	P	ST	PR	-	-	N		B	
			600	N	H	P	ST	PR	-	-	N		B	
		D	150	N	H	P	ST	PR	-	-	EzM-42XL	N	B	
			200	N	H	P	ST	PR	-	-		N	B	
			300	N	H	P	ST	PR	-	-		N	B	
			400	N	H	P	ST	PR	-	-		N	B	
			500	N	H	P	ST	PR	-	-		N	B	
			600	N	H	P	ST	PR	-	-		N	B	

\* If you want purchase MS33 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-56L please contact directly to head office of Fastech.

## MS45 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake	
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		None	Attachment
MS45	10 (10mm)	A	340	N	H	P	ST	PR	-	-	EzM-60L	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
		B	340	N	H	P	ST	PR	-	-	EzM-60L	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
	C	340	N	H	P	ST	PR	-	-	EzM-60L	N	B	
		440	N	H	P	ST	PR	-	-		N	B	
		540	N	H	P	ST	PR	-	-		N	B	
		640	N	H	P	ST	PR	-	-		N	B	
		740	N	H	P	ST	PR	-	-		N	B	
		940	N	H	-	ST	PR	-	-		N	B	
	D	340	N	H	P	ST	PR	-	-	EzM-60L	N	B	
		440	N	H	P	ST	PR	-	-		N	B	
		540	N	H	P	ST	PR	-	-		N	B	
		640	N	H	P	ST	PR	-	-		N	B	
		740	N	H	P	ST	PR	-	-		N	B	
		940	N	H	-	ST	PR	-	-		N	B	
20 (20mm)	A	340	N	H	P	ST	PR	-	-	EzM-60L	N	B	
		440	N	H	P	ST	PR	-	-		N	B	
		540	N	H	P	ST	PR	-	-		N	B	
		640	N	H	P	ST	PR	-	-		N	B	
		740	N	H	P	ST	PR	-	-		N	B	
		940	N	H	-	ST	PR	-	-		N	B	
	B	340	N	H	P	ST	PR	-	-	EzM-60L	N	B	
		440	N	H	P	ST	PR	-	-		N	B	
		540	N	H	P	ST	PR	-	-		N	B	
		640	N	H	P	ST	PR	-	-		N	B	
		740	N	H	P	ST	PR	-	-		N	B	
		940	N	H	-	ST	PR	-	-		N	B	

\* If you want purchase MS45 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-60L, please contact directly to head office of Fastech.

## MS46 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake	
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		None	Attachment
MS46	10 (10mm)	A	340	N	H	P	ST	PR	-	-	EzM-86M	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
		B	340	N	H	P	ST	PR	-	-	EzM-86M	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
		C	340	N	H	P	ST	PR	-	-	EzM-86M	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
	D	340	N	H	P	ST	PR	-	-	EzM-86M	N	B	
		440	N	H	P	ST	PR	-	-		N	B	
		540	N	H	P	ST	PR	-	-		N	B	
		640	N	H	P	ST	PR	-	-		N	B	
		740	N	H	P	ST	PR	-	-		N	B	
		940	N	H	-	ST	PR	-	-		N	B	
	20 (20mm)	A	340	N	H	P	ST	PR	-	-	EzM-86M	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B
		B	340	N	H	P	ST	PR	-	-	EzM-86M	N	B
			440	N	H	P	ST	PR	-	-		N	B
			540	N	H	P	ST	PR	-	-		N	B
			640	N	H	P	ST	PR	-	-		N	B
			740	N	H	P	ST	PR	-	-		N	B
			940	N	H	-	ST	PR	-	-		N	B

FASTECH Ezi-Robo Mono-Stage

\* If you want purchase MS46 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-86M, please contact directly to head office of Fastech,

## MS55 Part Numbering

Name of Part Numbering	Lead	Carriage-Nut Type	Rail Length	Accuracy Grades			Drive Type				Standard Motor	Brake	
				Standard	Upper grade	Precision grade	Pulse train input	Controller built	Pulse train input mini	Controller built mini		None	Attachment
MS55	20 (20mm)	A	980	N	H	P	ST	PR	-	-	EzM-86L	N	B
			1080	N	H	P	ST	PR	-	-		N	B
			1180	N	H	P	ST	PR	-	-		N	B
			1280	N	H	-	ST	PR	-	-		N	B
			1380	N	H	-	ST	PR	-	-		N	B
		B	980	N	H	P	ST	PR	-	-	EzM-86L	N	B
			1080	N	H	P	ST	PR	-	-		N	B
			1180	N	H	P	ST	PR	-	-		N	B
			1280	N	H	-	ST	PR	-	-		N	B
			1380	N	H	-	ST	PR	-	-		N	B

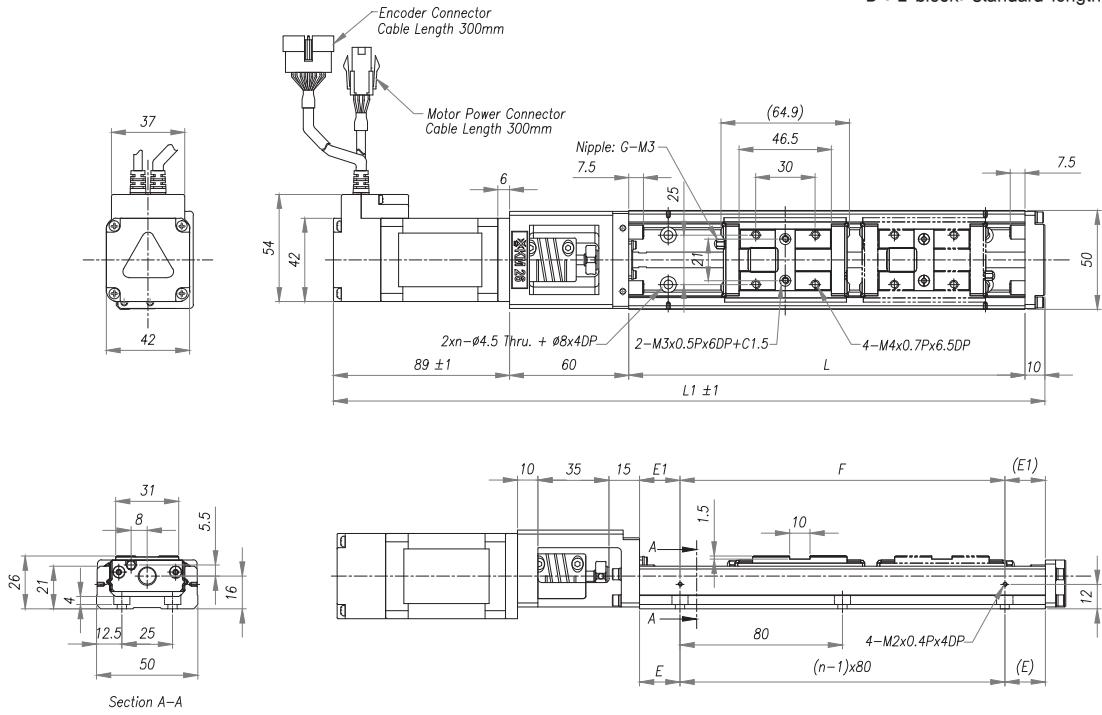
\* If you want purchase MS55 Unit product that combine with different electric capacity stepper motor other than standard motor EzM-86L, please contact directly to head office of Fastech,



# ● Outline and Dimension of Ezi-Robo MS Series

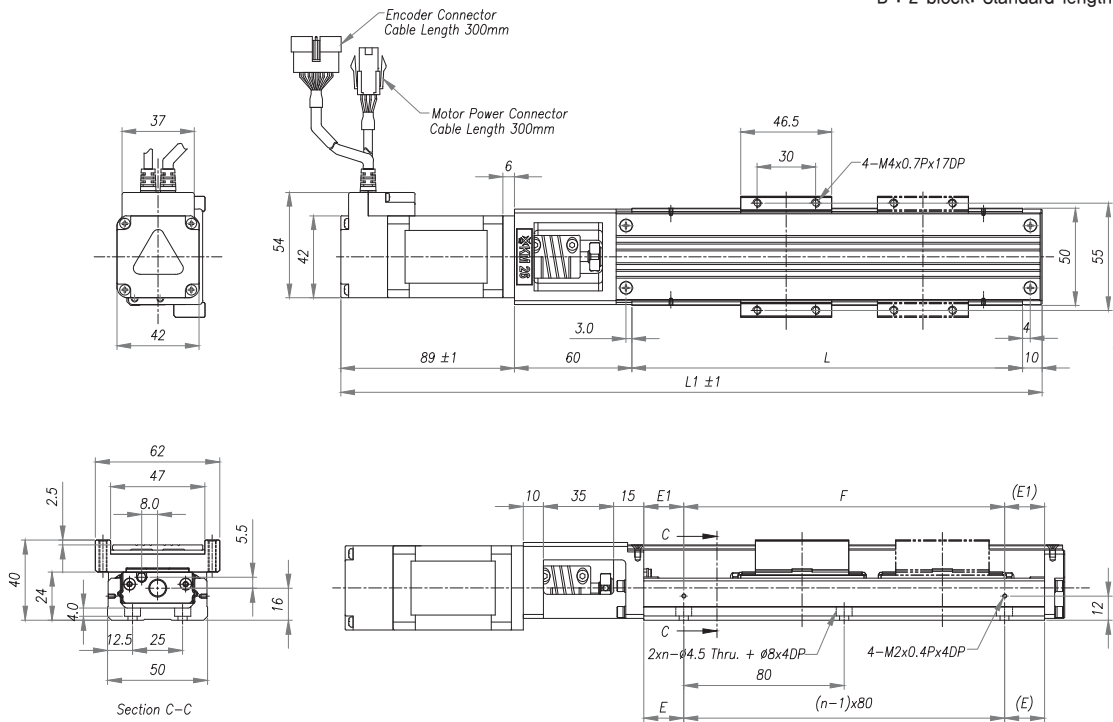
## MS26 Standard Type

A : 1 block: Standard length  
B : 2 block: Standard length



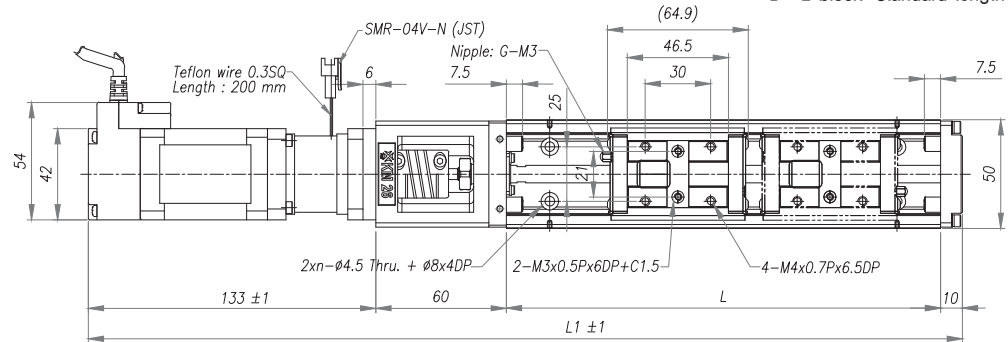
## MS26 Cover Type

A : 1 block: Standard length  
B : 2 block: Standard length



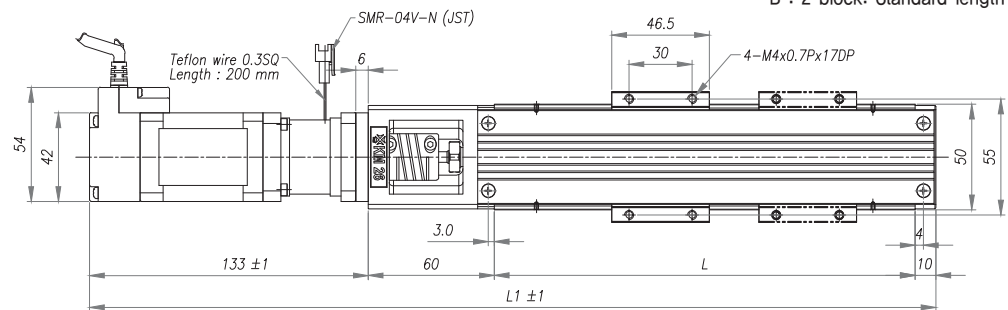
## MS26 Standard Type + Brake

A : 1 block: Standard length  
B : 2 block: Standard length



## MS26 Cover Type + Brake

A : 1 block: Standard length  
B : 2 block: Standard length



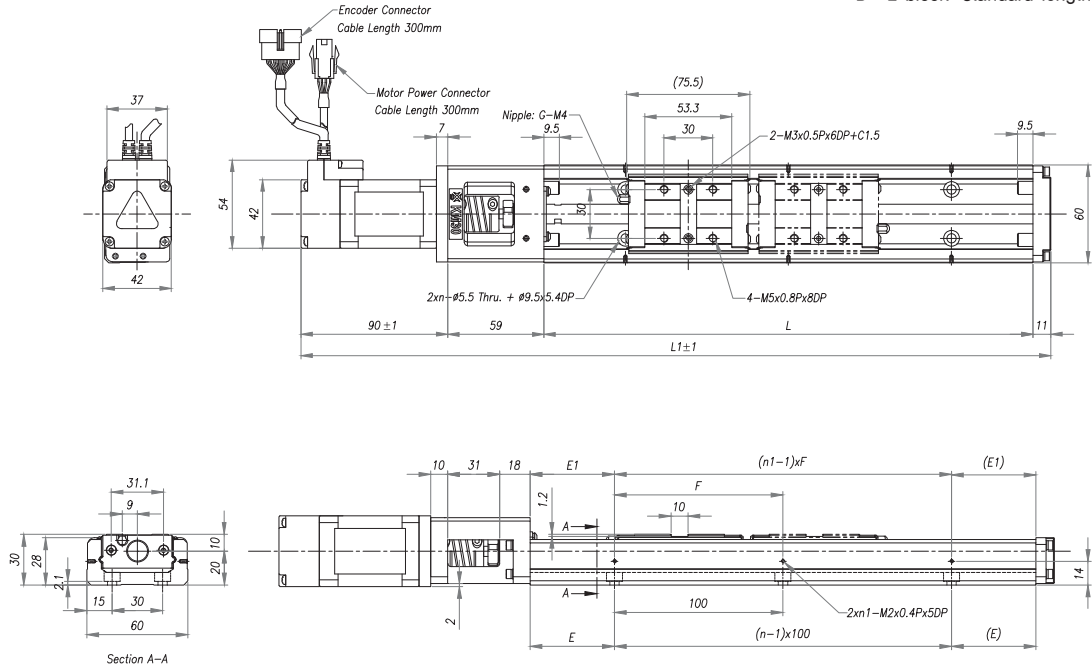
Main Specifications of MS26 Series. (Carriage - Nut A,B Type)							
Motor Type		EzM-42XL					
Rail length L (mm)		150	200	250	300		
Maximum Stroke (mm)		A Type	70	120	170	220	
		B Type <sup>Note1)</sup>	-	55	105	155	
Main Dimension (mm)	Standard	L1	309	359	409	459	
	Cover		309	359	409	459	
	Standard + Brake		353	403	453	503	
	Cover + Brake		353	403	453	503	
	Common	F	80	160	160	240	
		E	35	20	45	30	
		E1	35	20	45	30	
Number of Actuator Mounting Holes		n	2	3	3	4	
Number of Sensor Mounting Holes		n1	2	2	2	2	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 2mm	100				
		Lead 6mm	300				
Electromagnetic Brake Sustainability (N)		Lead 2mm	560				
		Lead 6mm	185				
Unit Weight (Kg)	No Brake	Standard	A Type	1,6	1,8	2,0	2,2
			B Type	-	2,0	2,2	2,4
		Cover	A Type	1,7	1,9	2,1	2,3
			B Type	-	2,1	2,3	2,5
	Brake is Attached	Standard	A Type	1,8	2,0	2,2	2,4
			B Type	-	2,2	2,4	2,6
		Cover	A Type	1,9	2,1	2,3	2,5
			B Type	-	2,3	2,5	2,7

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

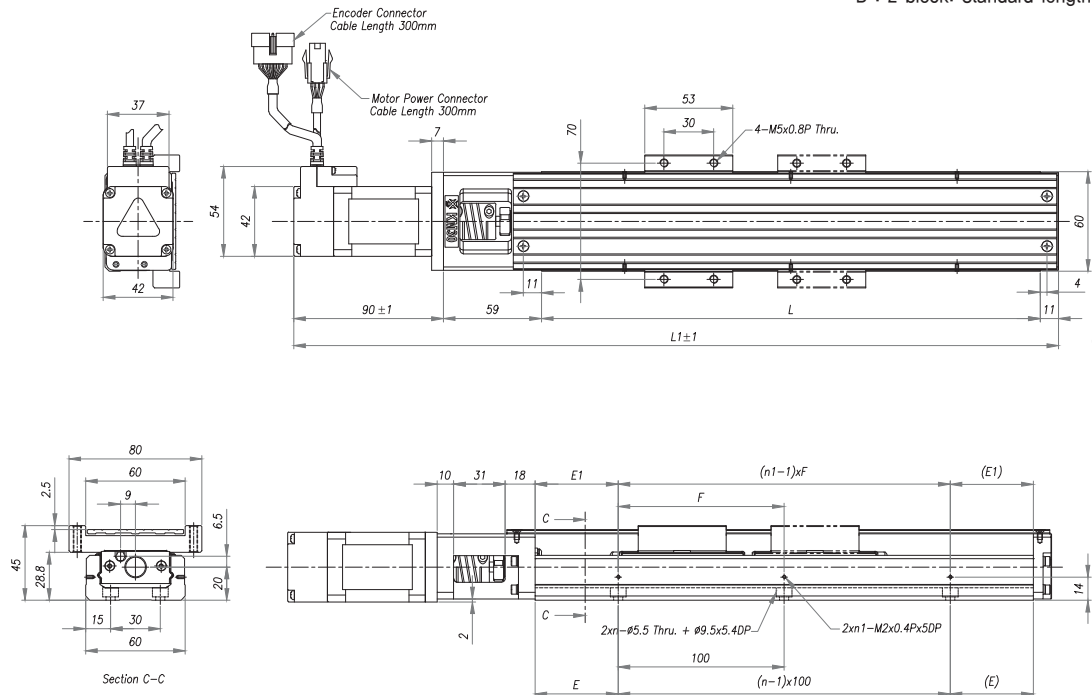
## MS30 Standard Type

A : 1 block: Standard length  
B : 2 block: Standard length



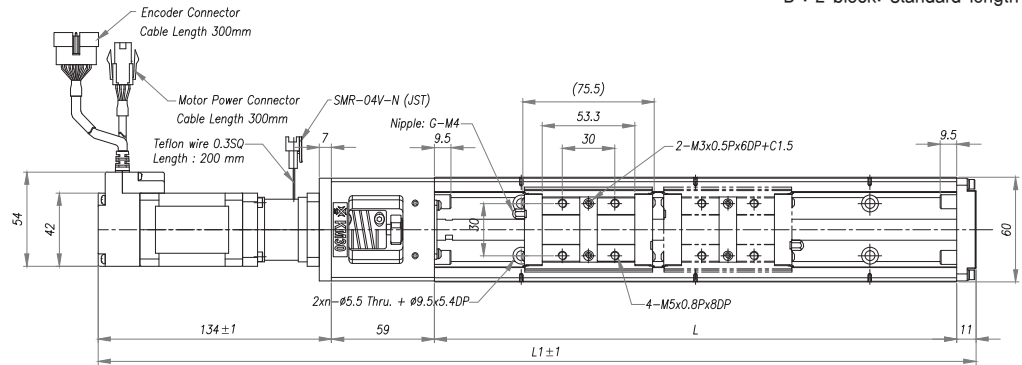
## MS30 Cover Type

A : 1 block: Standard length  
B : 2 block: Standard length



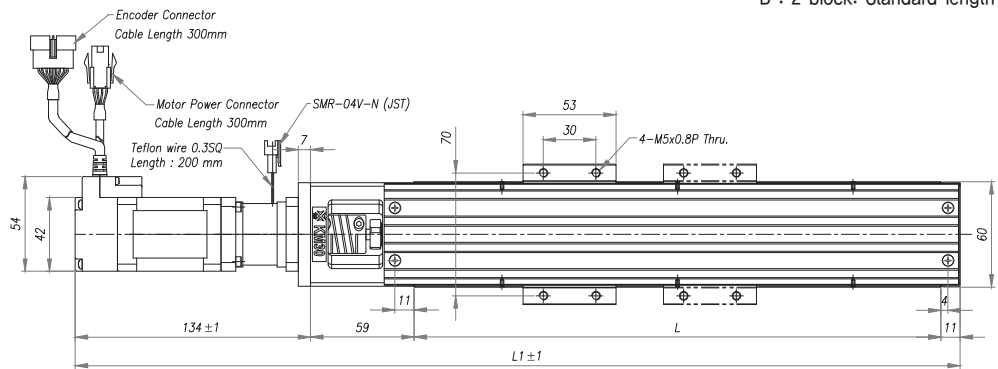
## MS30 Standard Type + Brake

A : 1 block: Standard length  
B : 2 block: Standard length



## MS30 Cover Type + Brake

A : 1 block: Standard length  
B : 2 block: Standard length



Main Specifications of MS30 Series. (Carriage – Nut A,B Type)

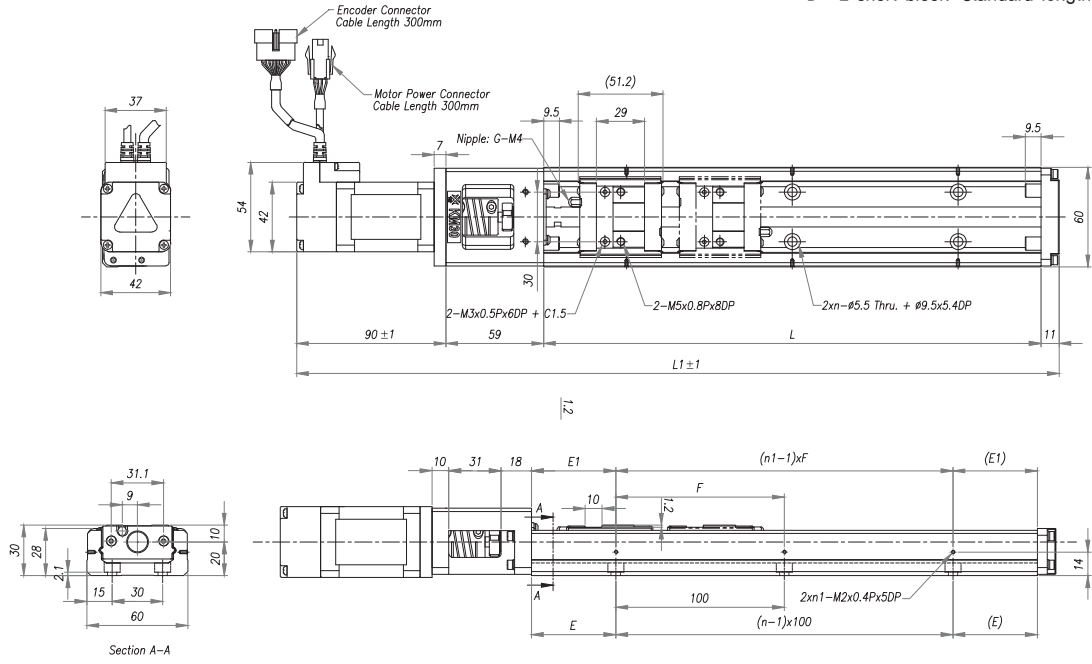
Motor Type		EzM-42XL							
Rail Length L (mm)		150	200	300	400	500	600		
Maximum Stroke (mm)	A Type	54,5	104,5	204,5	304,5	404,5	504,5		
	B Type <sup>Note1)</sup>	–	–	128	228	328	428		
Main Dimension (mm)	L1	Standard	310	360	460	560	660	760	
		Cover	310	360	460	560	660	760	
		Standard + Brake	354	404	504	604	704	804	
		Cover + Brake	354	404	504	604	704	804	
	Common	F	100	100	200	200	200	200	
	E	25	50	50	50	50	50		
	E1	25	50	50	100	50	100		
Number of Actuator Mounting Holes		n	2	2	3	4	5	6	
Number of Sensor Mounting Holes		n1	2	2	2	2	3	3	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 5mm	250						
		Lead 10mm	500						
Electromagnetic Brake Sustainability (N)		Lead 5mm	224						
		Lead 10mm	112						
Unit Weight (Kg)	No Brake	Standard	A Type	2,1	2,4	3,0	3,6	4,3	4,9
		B Type	–	–	3,4	4,0	4,7	5,3	
	Cover	A Type	2,3	2,6	3,2	3,8	4,5	5,1	
		B Type	–	–	3,7	4,3	5,0	5,6	
	Brake is attached	Standard	A Type	2,3	2,6	3,2	3,8	4,5	5,1
		B Type	–	–	3,6	4,2	4,9	5,5	
Cover	A Type	2,5	2,8	3,4	4,0	4,7	5,3		
	B Type	–	–	3,9	4,5	5,2	5,8		

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

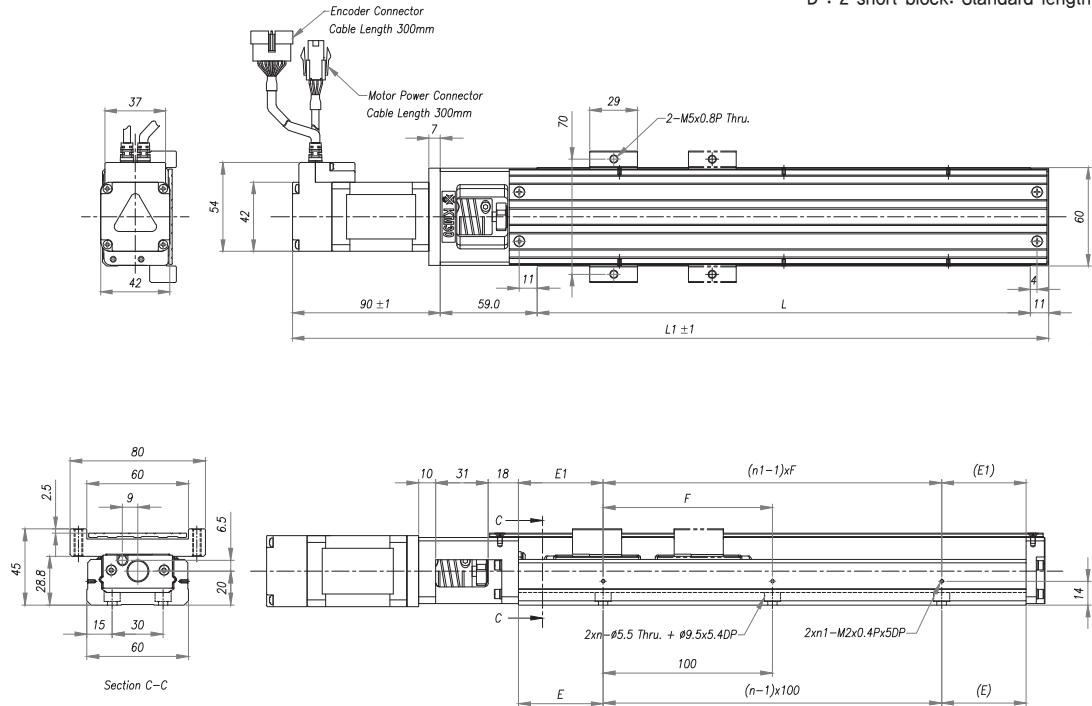
# MS30 Standard Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



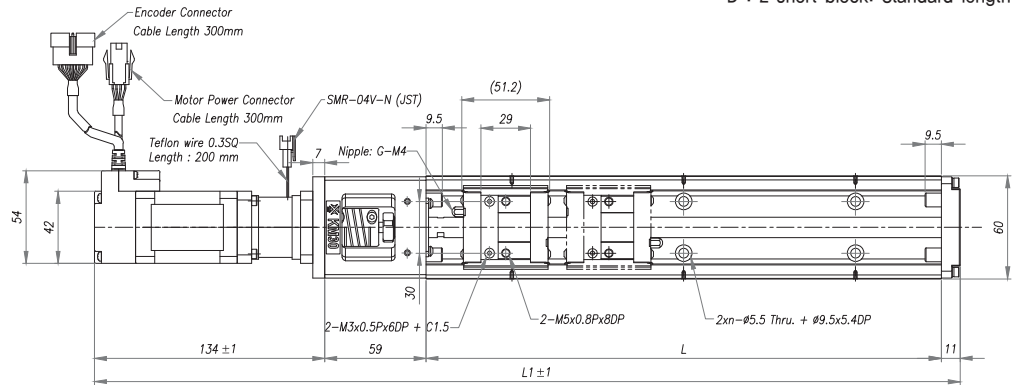
# MS30 Cover Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



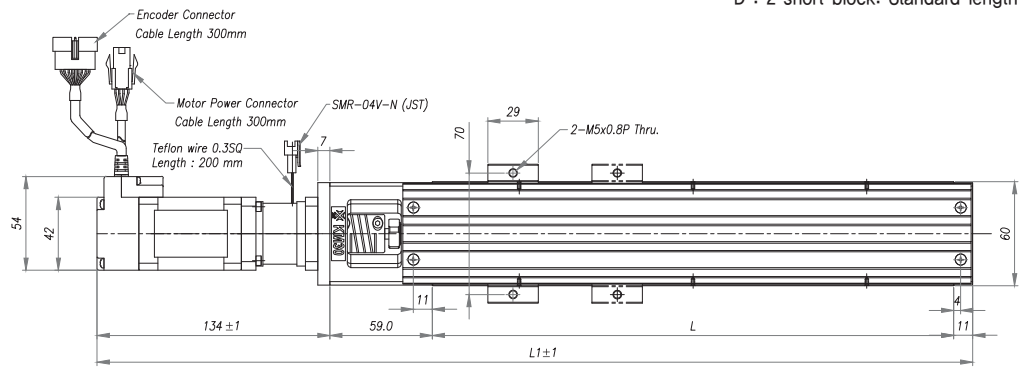
## MS30 Standard Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



## MS30 Cover Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



Main Specifications of MS30 Series. (Carriage - Nut C,D Type)

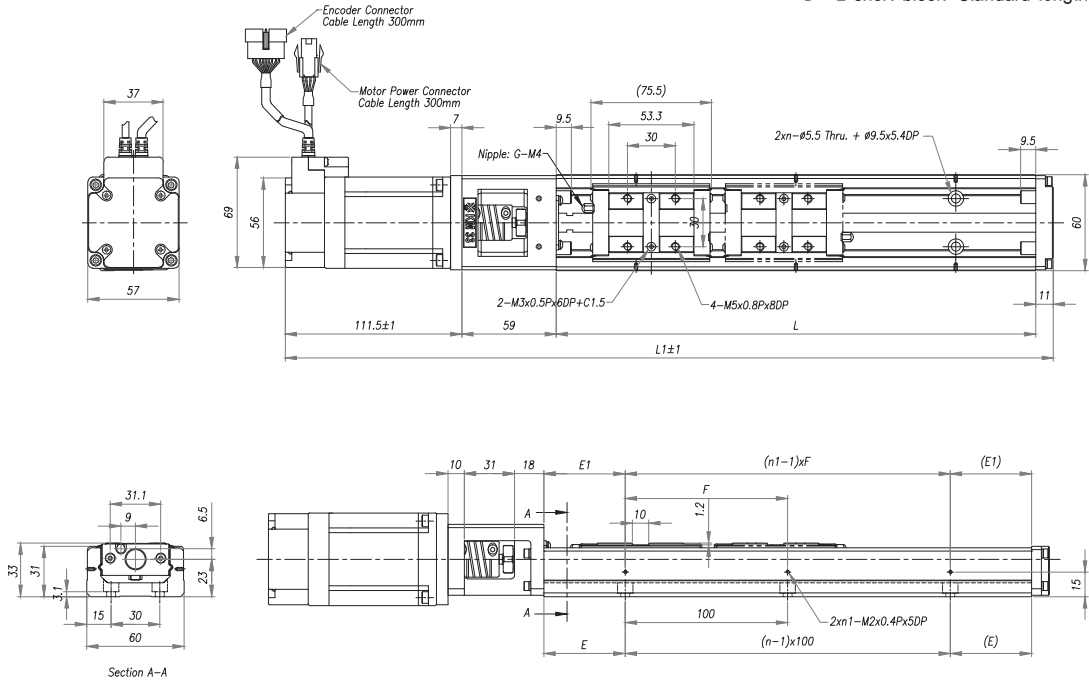
Motor Type		EzM-42XL							
Rail Length L (mm)		150	200	300	400	500	600		
Maximum Stroke (mm)	C Type	78.8	128.8	228.8	328.8	428.8	528.8		
	D Type <sup>Note1)</sup>	26.6	76.6	176.6	276.6	376.6	476.6		
Main Dimension (mm)	L1	Standard	310	360	460	560	660	760	
		Cover	310	360	460	560	660	760	
		Standard + Brake	354	404	504	604	704	804	
		Cover + Brake	354	404	504	604	704	804	
	Common	F	100	100	200	200	200	200	
	E	25	50	50	50	50	50		
	E1	25	50	50	100	50	100		
Number of Actuator Mounting Holes		n	2	2	3	4	5	6	
Number of Sensor Mounting Holes		n1	2	2	2	2	3	3	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 5mm	250						
		Lead 10mm	500						
Electromagnetic Brake Sustainability (N)		Lead 5mm	224						
		Lead 10mm	112						
Unit Weight (Kg)	No Brake	Standard	C Type	2.0	2.3	2.9	3.5	4.2	4.8
			D Type	2.3	2.6	3.2	3.8	4.5	5.1
		Cover	C Type	2.1	2.4	3.0	3.6	4.3	5.0
			D Type	2.4	2.7	3.3	3.9	4.6	5.3
	Brake is Attached	Standard	C Type	2.2	2.5	3.1	3.7	4.4	5.0
			D Type	2.5	2.8	3.4	4.0	4.7	5.3
		Cover	C Type	2.3	2.6	3.2	3.8	4.5	5.2
			D Type	2.6	2.9	3.5	4.1	4.8	5.5

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

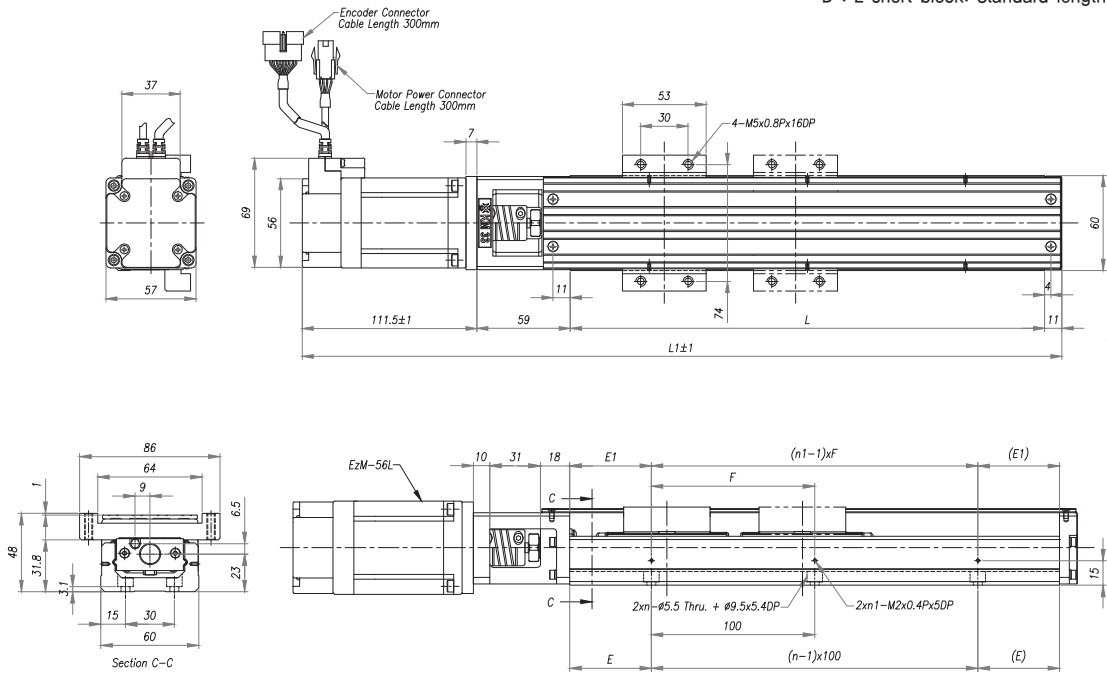
# MS33 Standard Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



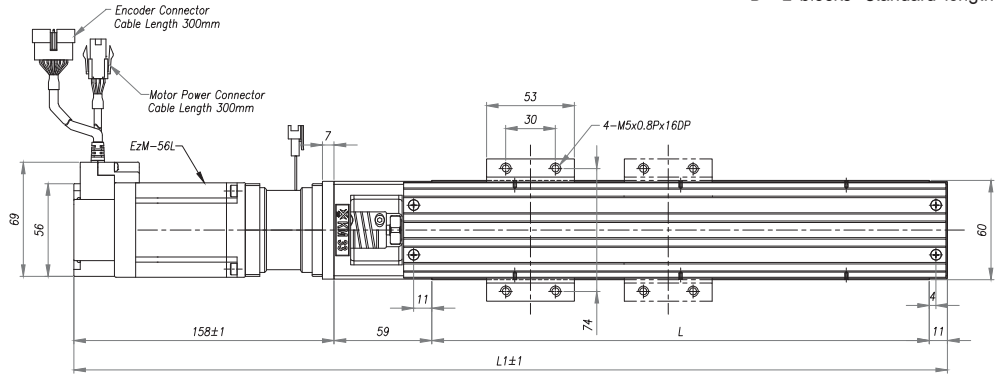
# MS33 Cover Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



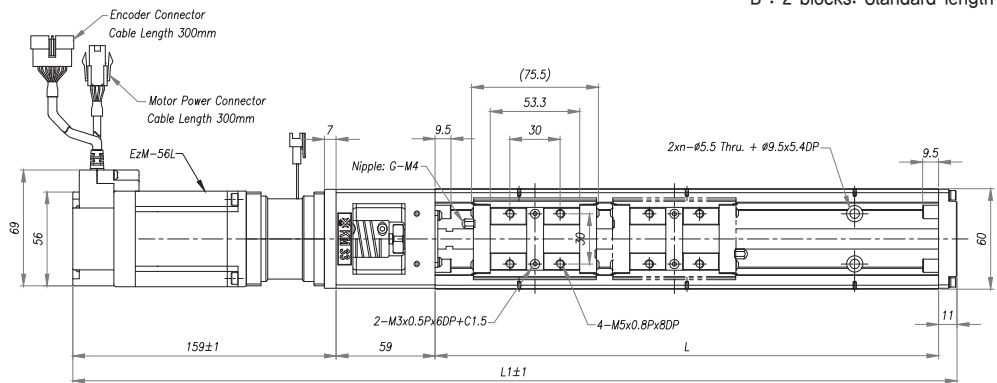
## MS33 Standard Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



## MS33 Cover Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



Main Specifications of MS33 Series. (Carriage - Nut A,B Type)

Motor Type		EzM-56L							
Rail Length L (mm)		150	200	300	400	500	600		
Maximum Stroke (mm)	A Type	54,5	104,5	204,5	304,5	404,5	504,5		
	B Type <sup>Note1)</sup>	-	-	128	228	328	428		
Main Dimension (mm)	Standard	L1	331,5	381,5	481,5	581,5	681,5	781,5	
			Cover	331,5	381,5	481,5	581,5	681,5	781,5
			Standard + Brake	378	428	528	628	728	828
	Cover + Brake	378	428	528	628	728	828		
	Common	F	100	100	200	200	200	200	
E		25	50	50	50	50	50		
E1		25	50	50	100	50	100		
Number of Actuator Mounting Holes		n	2	2	3	4	5	6	
Number of Sensor Mounting Holes		n1	2	2	2	2	3	3	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 5mm	250						
		Lead 10mm	500						
Electromagnetic Brake Sustainability (N)		Lead 5mm	224						
		Lead 10mm	112						
Unit Weight (Kg)	No Brake	Standard	A Type	3,0	3,3	3,9	4,5	5,2	5,8
		B Type	-	-	4,3	4,9	5,6	6,2	
	Cover	A Type	3,2	3,5	4,1	4,7	5,4	6,0	
		B Type	-	-	4,6	5,2	5,9	6,5	
	Brake is Attached	Standard	A Type	3,5	3,8	4,4	5,0	5,7	6,3
		B Type	-	-	4,8	5,4	6,1	6,7	
Cover	A Type	3,7	4,0	4,6	5,2	5,9	6,5		
	B Type	-	-	5,1	5,7	6,4	7,0		

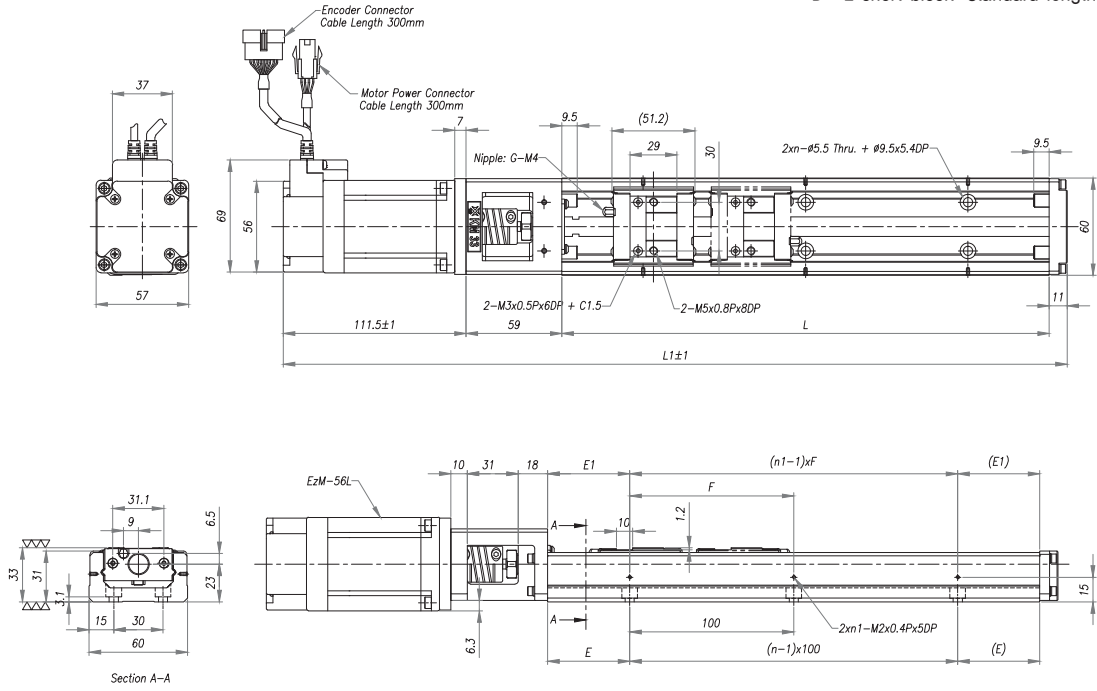
Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.



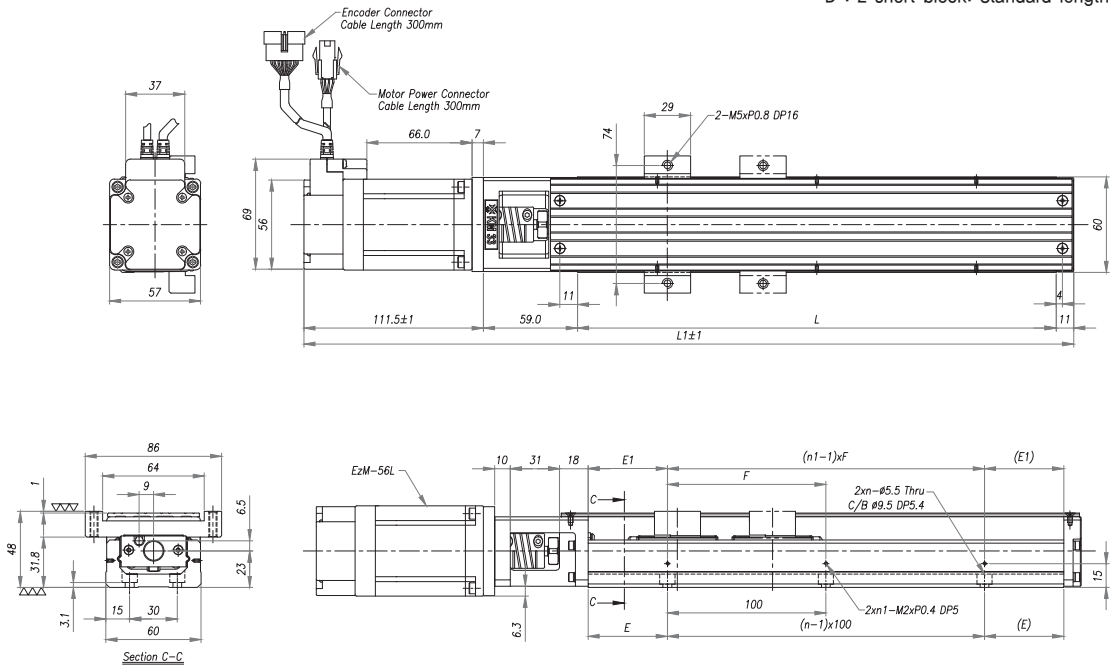
# MS33 Standard Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



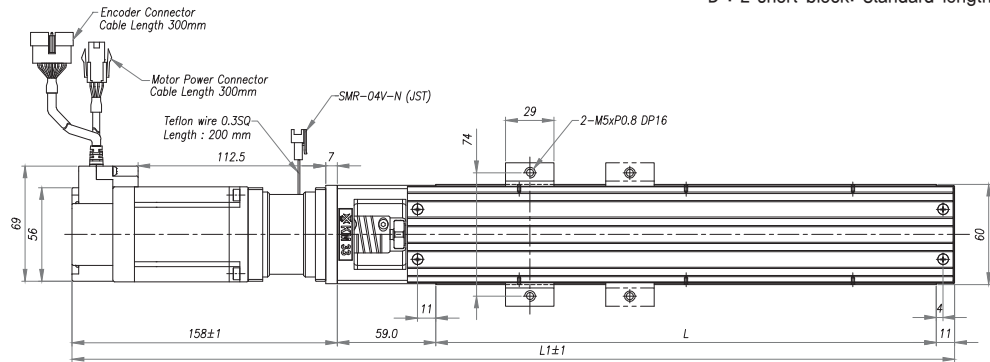
# MS33 Cover Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



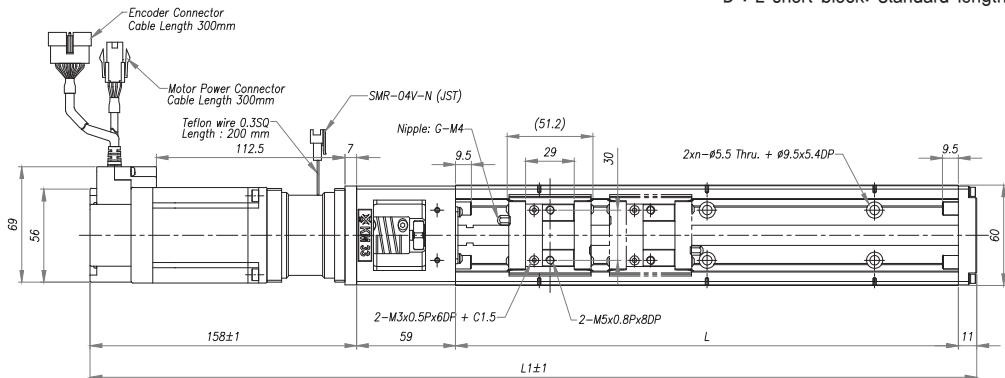
## MS33 Standard Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



## MS33 Cover Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



Main Specifications of MS33 Series. (Carriage - Nut C,D Type)

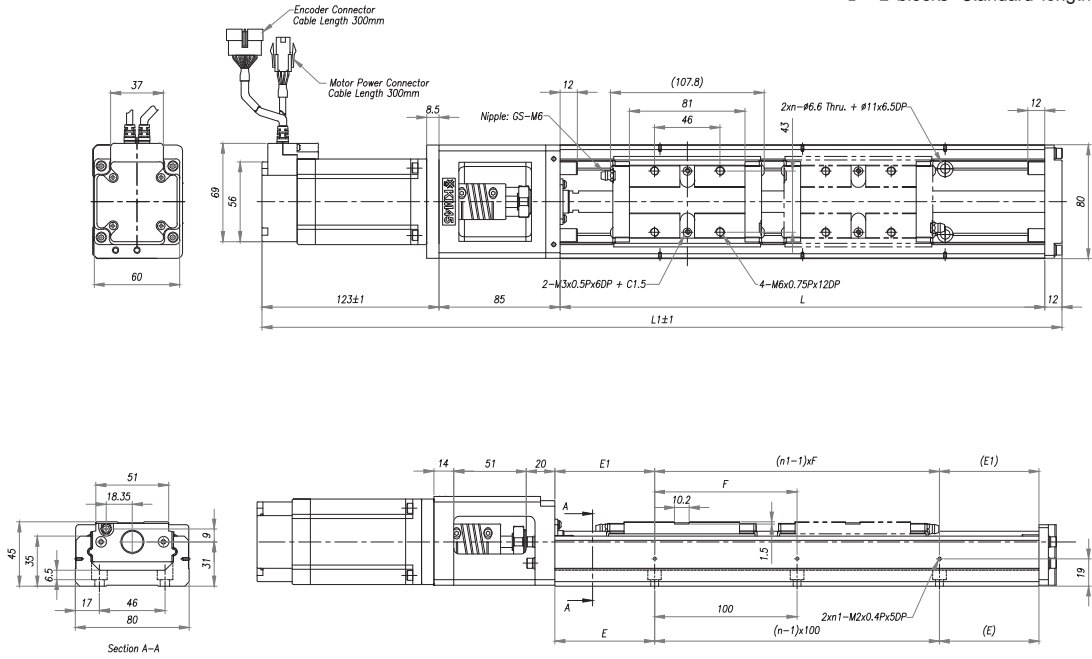
Motor Type		EzM-56L							
Rail Length L (mm)		150	200	300	400	500	600		
Maximum Stroke (mm)	C Type	78,8	128,8	228,8	328,8	428,8	528,8		
	D Type <sup>Note1)</sup>	26,6	76,6	176,6	276,6	376,6	476,6		
Main Dimension (mm)	Standard	L1	331,5	381,5	481,5	581,5	681,5	781,5	
			331,5	381,5	481,5	581,5	681,5	781,5	
			378	428	528	628	728	828	
	Cover + Brake	F	100	100	200	200	200	200	
			E	25	50	50	50	50	50
Common	E1	25	50	50	100	50	100		
		n	2	2	3	4	5	6	
Number of Actuator Mounting Holes		n1	2	2	2	3	3		
Number of Sensor Mounting Holes		Lead 5mm	250						
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)			Lead 10mm	500					
Electromagnetic Brake Sustainability (N)		Lead 5mm	224						
		Lead 10mm	112						
Unit Weight (Kg)	No Brake	Standard	C Type	2,9	3,2	3,8	4,4	5,1	5,7
			D Type	3,1	3,4	4,0	4,6	5,3	5,8
		Cover	C Type	3,0	3,3	3,9	4,5	5,2	5,8
			D Type	3,3	3,6	4,2	4,8	5,5	6,0
	Brake is Attached	Standard	C Type	3,4	3,7	4,5	4,9	5,6	6,2
			D Type	3,6	3,9	4,5	5,1	5,8	6,3
		Cover	C Type	3,5	3,8	4,4	5,0	5,7	6,3
			D Type	3,8	4,1	4,7	5,3	6,0	6,5

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

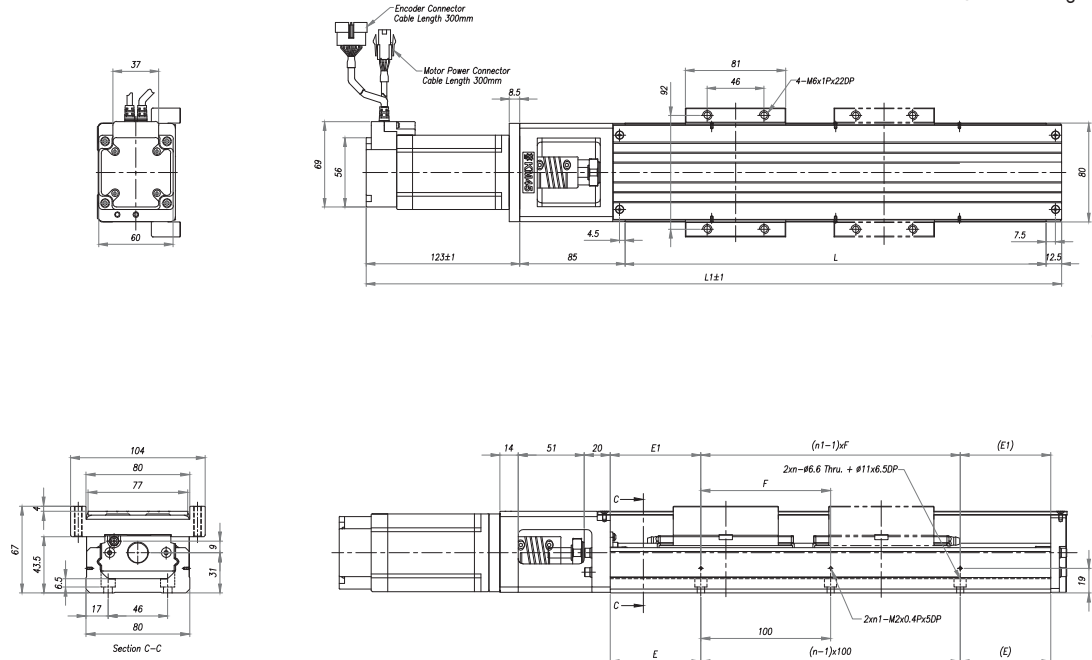
# MS45 Standard Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



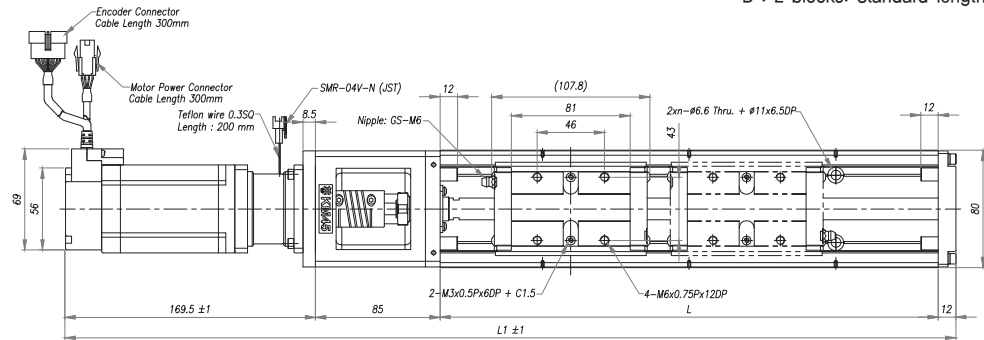
# MS45 Cover Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



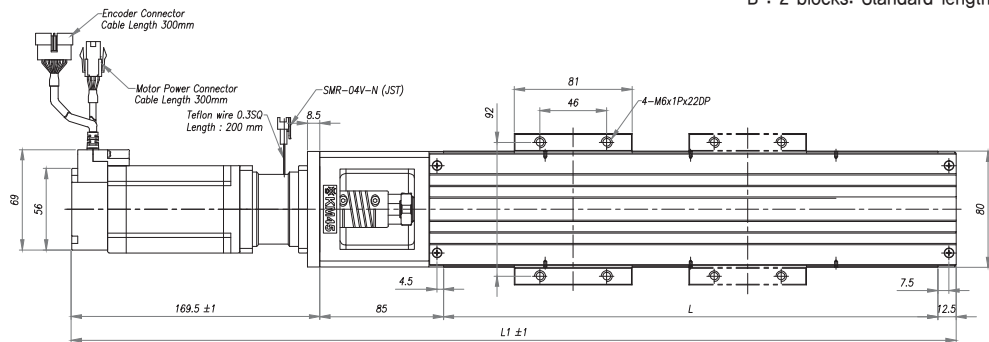
## MS45 Standard Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



## MS45 Cover Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



Main Specifications of MS45 Series. (Carriage - Nut A,B Type)

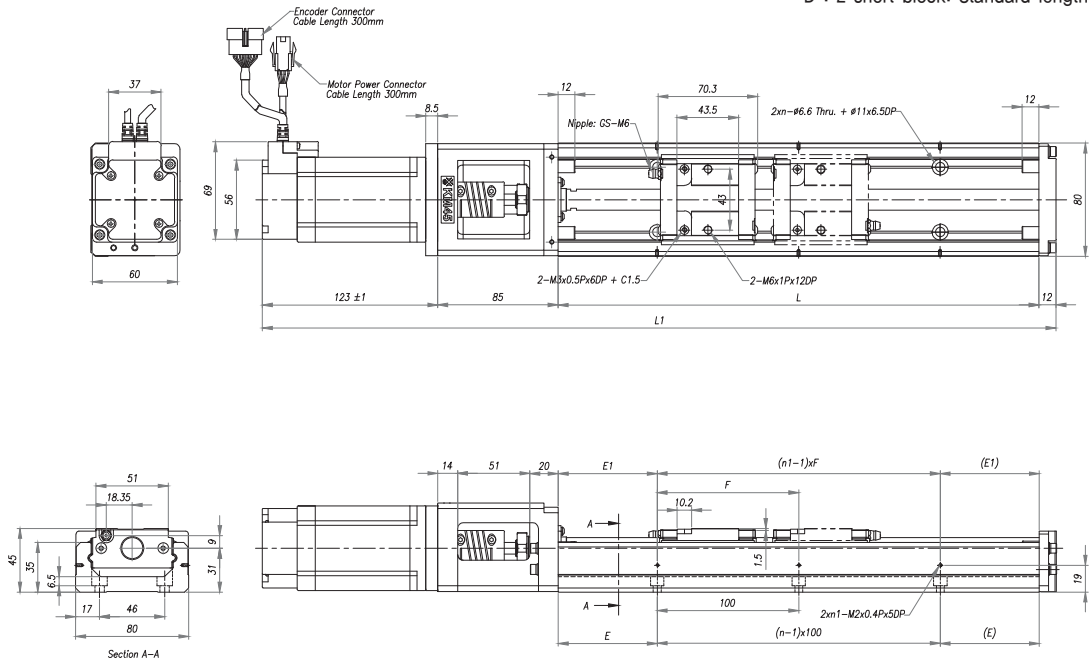
Motor Type		EzM-60L							
Rail Length L (mm)		340	440	540	640	740	940		
Maximum Stroke (mm)	A Type	208,2	308,2	408,2	508,2	608,2	808,2		
	B Type <sup>Note1)</sup>	100,4	200,4	300,4	400,4	500,4	700,4		
Main Dimension (mm)	Standard	L1	551,5	651,5	751,5	851,5	951,5	1151,5	
	Cover		552	652	752	852	952	1152	
	Standard + Brake		598	698	798	898	998	1198	
	Cover + Brake		598,5	698,5	798,5	898,5	998,5	1198,5	
	Common	F	100	100	100	100	100	100	
	E	70	70	70	70	70	70		
	E1	70	20	70	20	70	70		
Number of Actuator Mounting Holes		n	3	4	5	6	7	9	
Number of Sensor Mounting Holes		n1	2	3	3	4	4	5	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 10mm	500				430		
		Lead 20mm	1000				840		
Electromagnetic Brake Sustainability (N)		Lead 10mm	112						
		Lead 20mm	56						
Unit Weight (Kg)	No Brake	Standard	A Type	8,4	9,7	11,0	12,3	13,7	16,0
			B Type	9,6	10,9	12,2	13,5	14,9	17,2
		Cover	A Type	9,0	10,3	11,6	12,9	14,3	16,6
			B Type	10,4	11,7	13,0	14,3	15,7	18,0
	Brake is Attached	Standard	A Type	8,9	10,2	11,5	12,8	14,2	16,5
			B Type	10,1	11,4	12,7	14,0	15,4	17,7
		Cover	A Type	9,5	10,8	12,1	13,4	14,8	17,1
			B Type	10,9	12,2	13,5	14,8	16,2	18,5

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

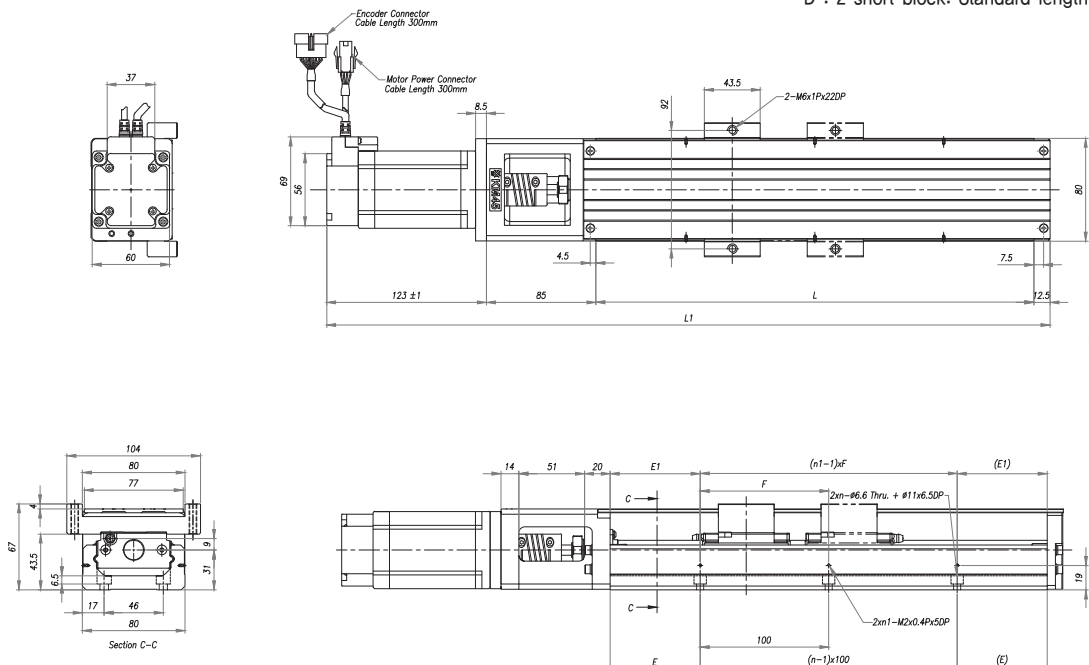
## MS45 Standard Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



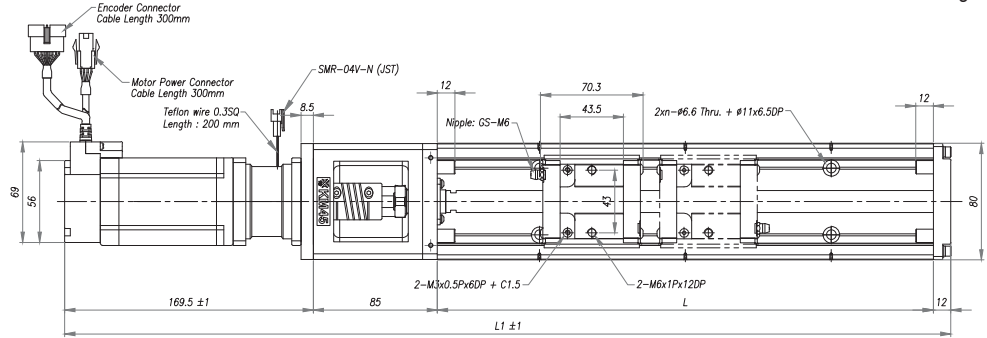
## MS45 Cover Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



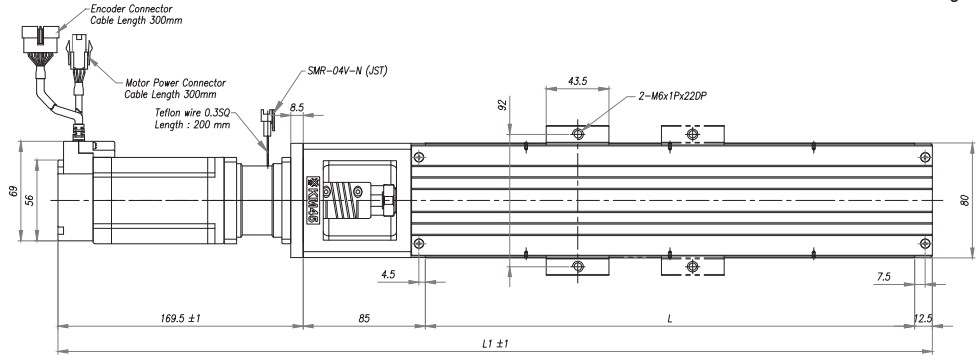
## MS45 Standard Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



## MS45 Cover Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



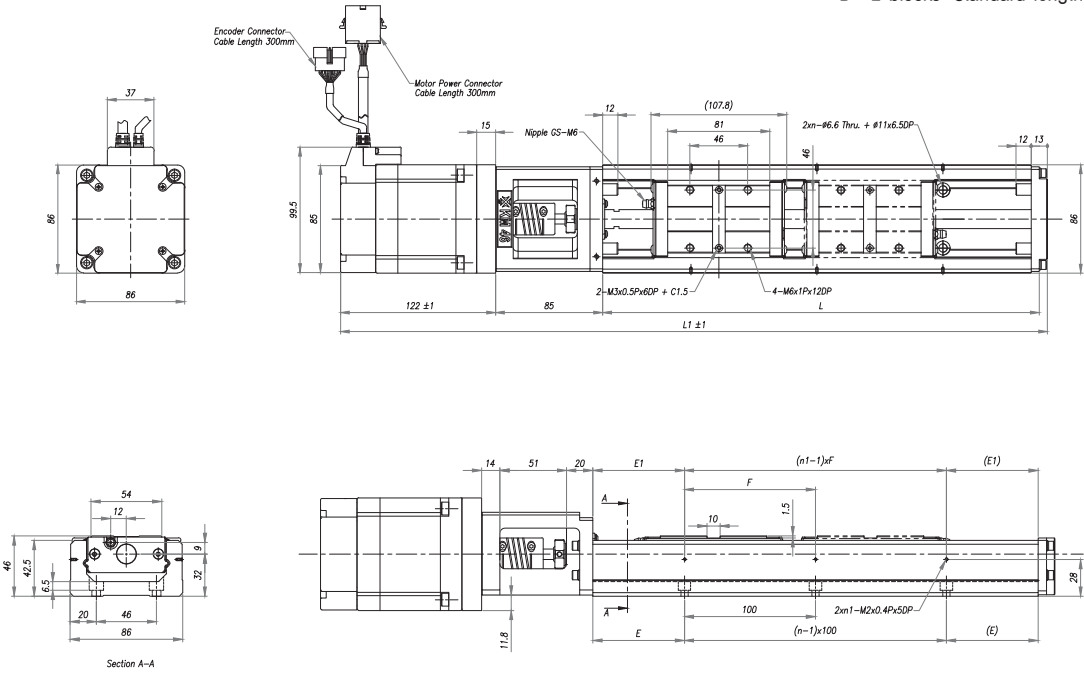
Main Specifications of MS45 Series. (Carriage – Nut C,D Type)									
Motor Type		EzM-60L							
Rail Length L (mm)		340	440	540	640	740	940		
Maximum Stroke (mm)	C Type	244.7	344.7	444.7	544.7	644.7	844.7		
	D Type <sup>Note1)</sup>	173.4	273.4	373.4	473.4	573.4	773.4		
Main Dimension (mm)	L1	Standard	551.5	651.5	751.5	851.5	951.5	1151.5	
		Cover	552	652	752	852	952	1152	
		Standard + Brake	598	698	798	898	998	1198	
		Cover + Brake	598.5	698.5	798.5	898.5	998.5	1198.5	
	Common	F	100	100	100	100	100	100	
	E	70	70	70	70	70	70		
	E1	70	20	70	20	70	70		
Number of Actuator Mounting Holes		n	3	4	5	6	7	9	
Number of Sensor Mounting Holes		n1	2	3	3	4	4	5	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 10mm	500				430		
		Lead 20mm	1000				840		
Electromagnetic Brake Sustainability (N)		Lead 10mm	112						
		Lead 20mm	56						
Unit Weight (Kg)	No Brake	Standard	C Type	8.0	9.3	10.6	11.9	13.3	15.6
			D Type	8.8	10.1	11.4	12.7	14.1	16.4
		Cover	C Type	8.2	9.5	10.8	12.1	13.5	15.8
			D Type	9.2	10.5	11.8	13.1	14.5	16.8
	Brake is Attached	Standard	C Type	8.5	9.8	11.1	12.4	13.8	16.1
			D Type	9.3	10.6	11.9	13.2	14.6	16.9
		Cover	C Type	8.7	10.0	11.3	12.6	14.0	16.3
			D Type	9.7	11.0	12.3	13.6	15.0	17.3

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

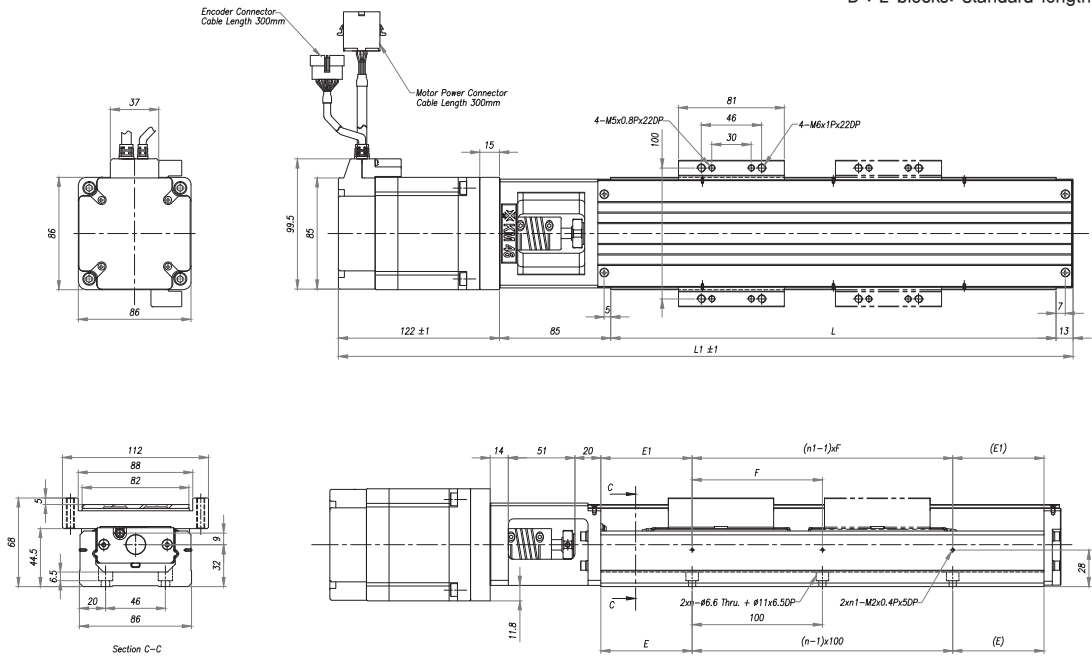
# MS46 Standard Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



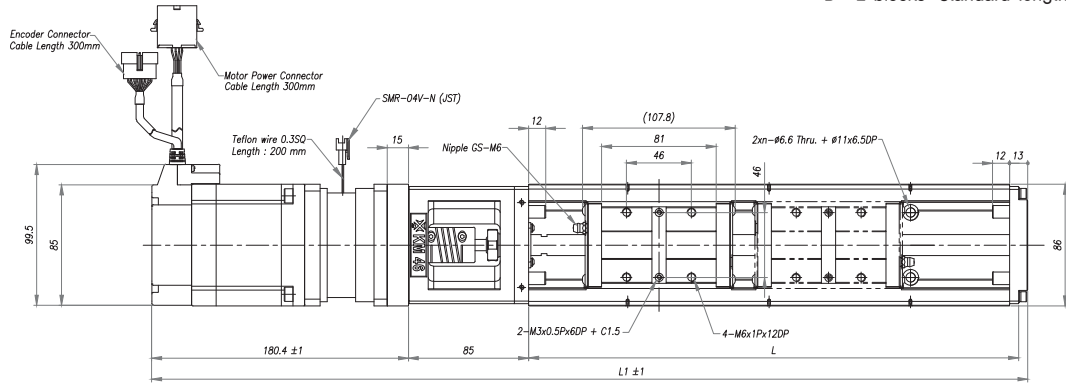
# MS46 Cover Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



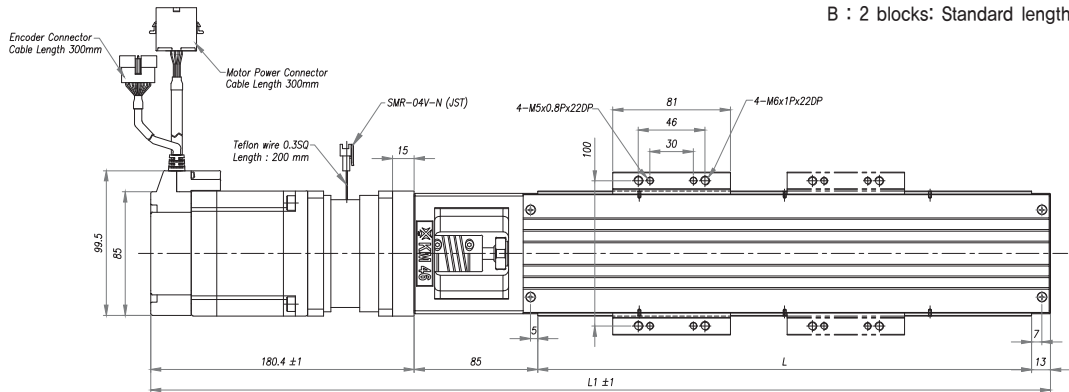
## MS46 Standard Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



## MS46 Cover Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



Main Specifications of MS46 Series. (Carriage - Nut A,B Type)

Motor Type		EzM-86M							
Rail Length L (mm)		340	440	540	640	740	940		
Maximum Stroke (mm)	A Type	208,2	308,2	408,2	508,2	608,2	808,2		
	B Type <sup>Note1)</sup>	100,4	200,4	300,4	400,4	500,4	700,4		
Main Dimension (mm)	Standard	L1	560	660	760	860	960	1160	
			560	660	760	860	960	1160	
			618,4	718,4	818,4	918,4	1018,4	1218,4	
			618,4	718,4	818,4	918,4	1018,4	1218,4	
	Common	F	100	100	100	100	100	100	
	E	70	70	70	70	70	70		
	E1	70	20	70	20	70	70		
Number of Actuator Mounting Holes		n	3	4	5	6	7	9	
Number of Sensor Mounting Holes		n1	2	3	3	4	4	5	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 10mm	500				430		
		Lead 20mm	1000				840		
Electromagnetic Brake Sustainability (N)		Lead 10mm	112						
		Lead 20mm	56						
Unit Weight (Kg)	No Brake	Standard	A Type	10,0	11,3	12,6	13,9	15,3	17,6
			B Type	11,2	12,5	13,8	15,1	16,5	18,8
		Cover	A Type	10,6	11,9	13,2	14,5	15,9	18,2
			B Type	12,0	13,3	14,6	15,9	17,3	19,6
	Brake is Attached	Standard	A Type	11,3	12,6	13,9	15,2	16,6	18,9
			B Type	12,5	13,8	15,1	16,4	17,8	20,1
		Cover	A Type	11,9	13,2	14,5	15,8	17,2	19,5
			B Type	13,3	14,6	15,9	17,2	18,6	20,9

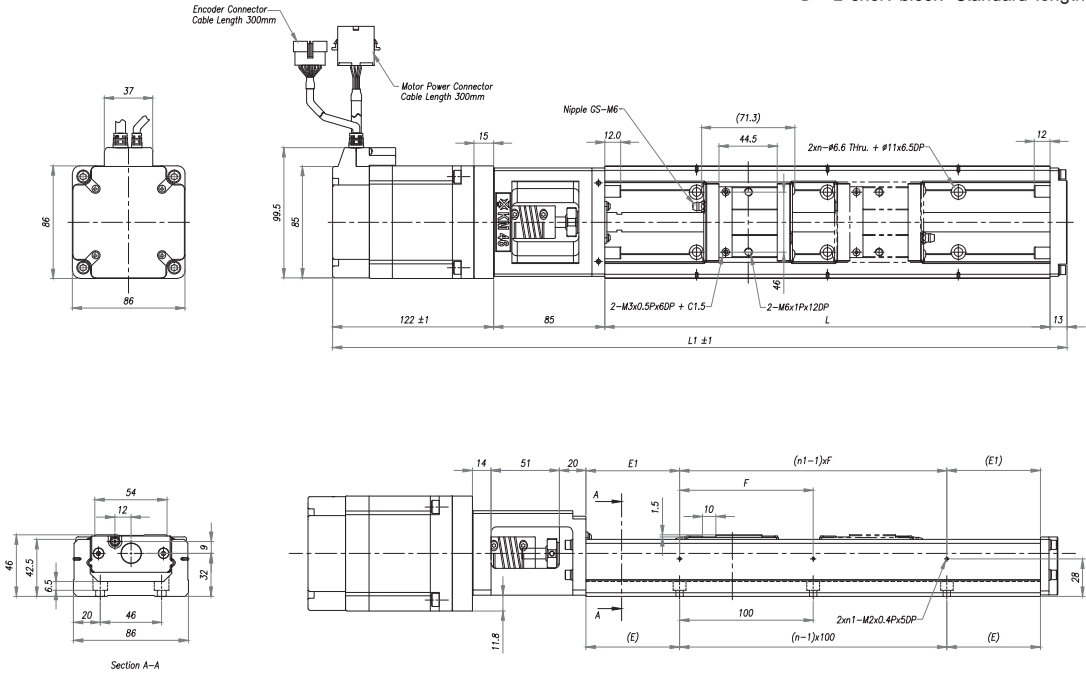
Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.



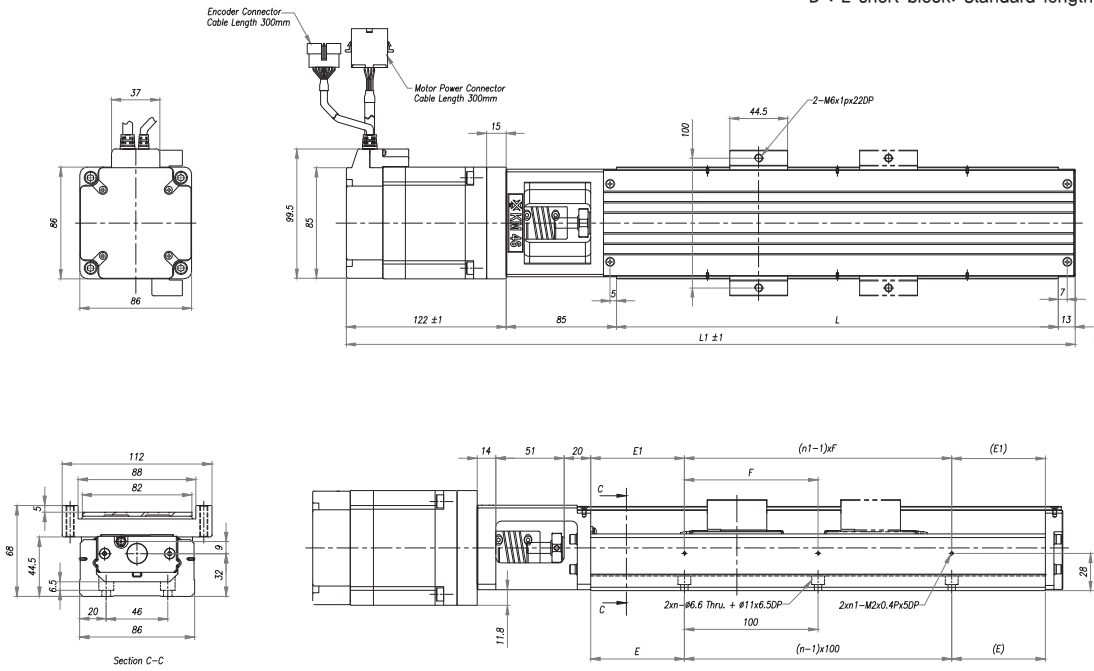
# MS46 Standard Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



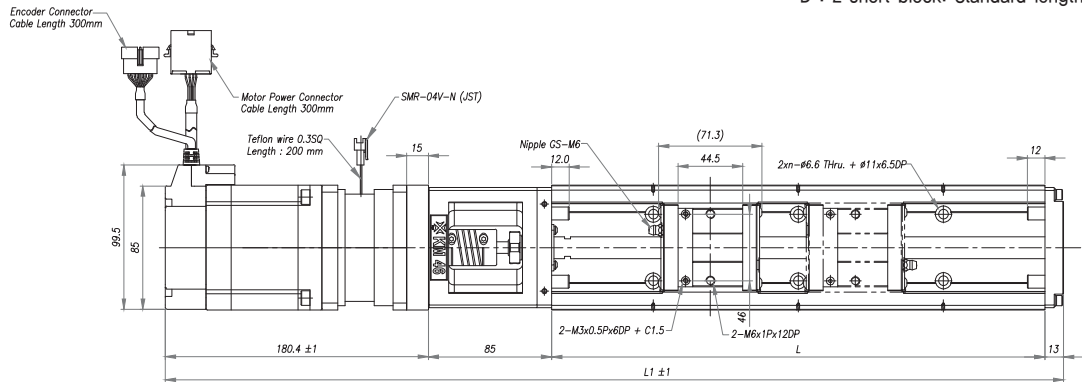
# MS46 Cover Type

C : 1 short block: Standard length  
 D : 2 short block: Standard length



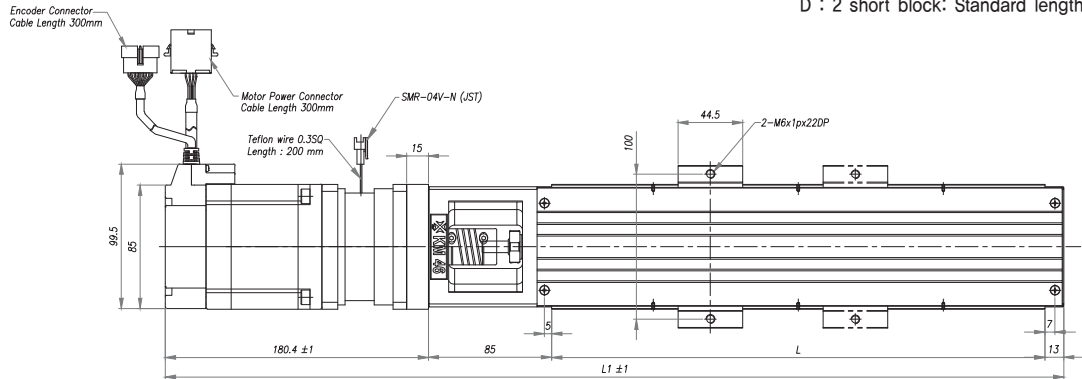
## MS46 Standard Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



## MS46 Cover Type + Brake

C : 1 short block: Standard length  
D : 2 short block: Standard length



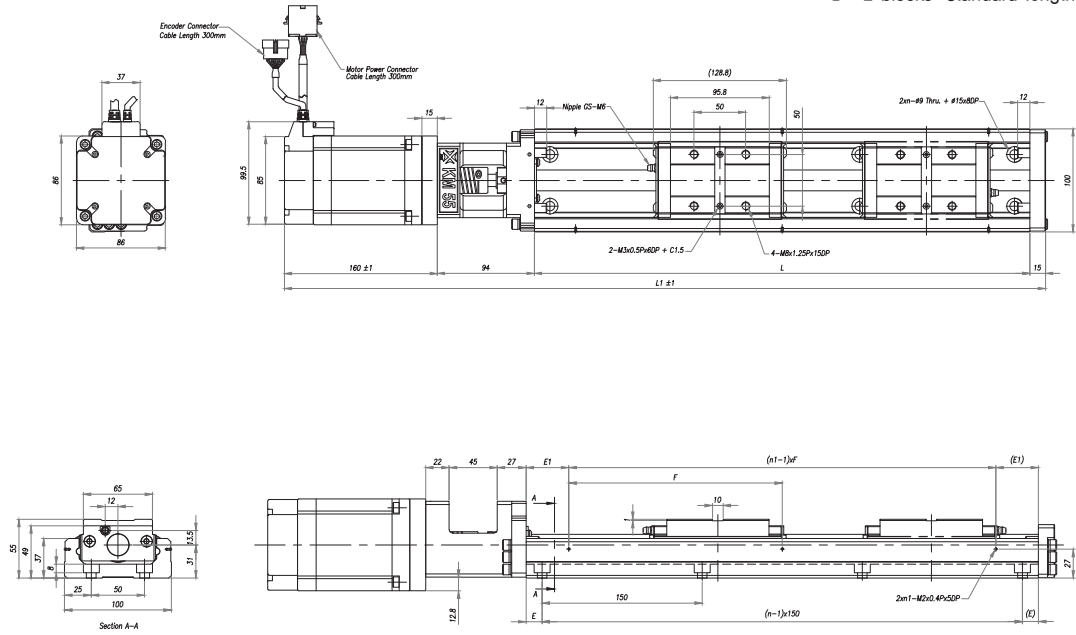
Main Specifications of MS46 Series. (Carriage - Nut C,D Type)									
Motor Type		EzM-86M							
Rail Length L (mm)		340	440	540	640	740	940		
Maximum Stroke (mm)	C Type	244.7	344.7	444.7	544.7	644.7	844.7		
	DB Type <sup>Note1)</sup>	173.4	273.4	373.4	473.4	573.4	773.4		
Main Dimension (mm)	Standard	L1	560	660	760	860	960	1160	
			560	660	760	860	960	1160	
			618.4	718.4	818.4	918.4	1018.4	1218.4	
			618.4	718.4	818.4	918.4	1018.4	1218.4	
	Common		F	100	100	100	100	100	
		E	70	70	70	70	70		
		E1	70	20	70	20	70		
Number of Actuator Mounting Holes		n	3	4	5	6	7	9	
Number of Sensor Mounting Holes		n1	2	3	3	4	4	5	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 10mm	500				430		
		Lead 20mm	1000				840		
Electromagnetic Brake Sustainability (N)		Lead 10mm	112						
		Lead 20mm	56						
Unit Weight (Kg)	No Brake	Standard	C Type	9.6	10.9	12.2	13.5	14.9	17.1
			D Type	10.4	11.7	13.0	14.3	15.7	18.0
		Cover	C Type	9.8	11.1	12.4	13.7	15.1	17.4
			D Type	10.8	12.1	13.4	14.7	16.1	18.4
	Brake is Attached	Standard	C Type	10.9	12.2	13.5	14.7	16.2	18.4
			D Type	11.7	13.0	14.3	15.6	17.0	19.3
		Cover	C Type	11.1	12.4	13.7	15.0	16.4	18.7
			D Type	12.1	13.4	14.7	16.0	17.4	19.7

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

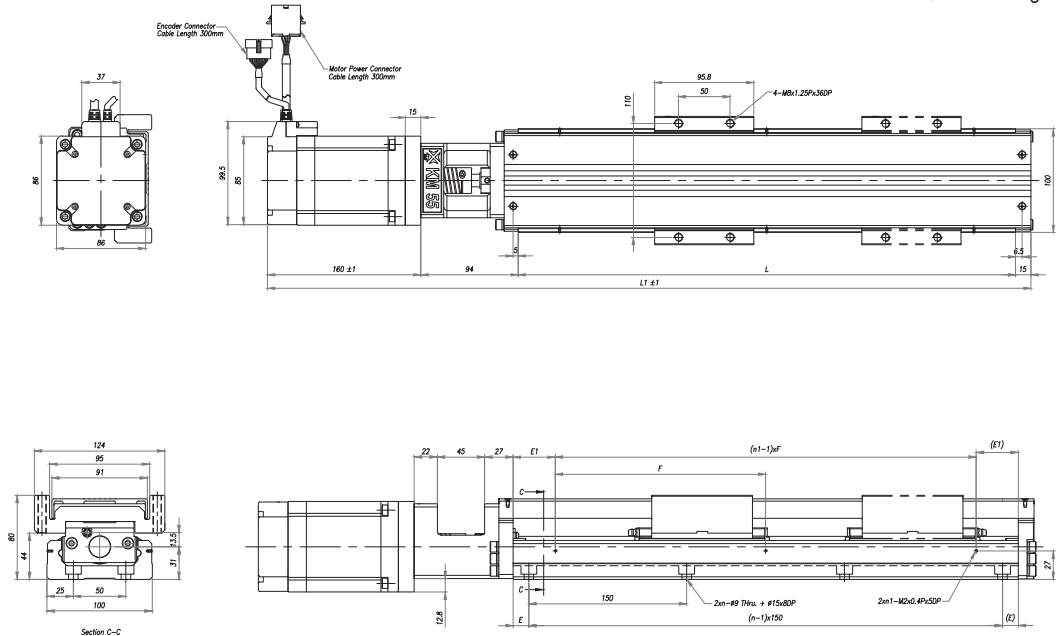
# MS55 Standard Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



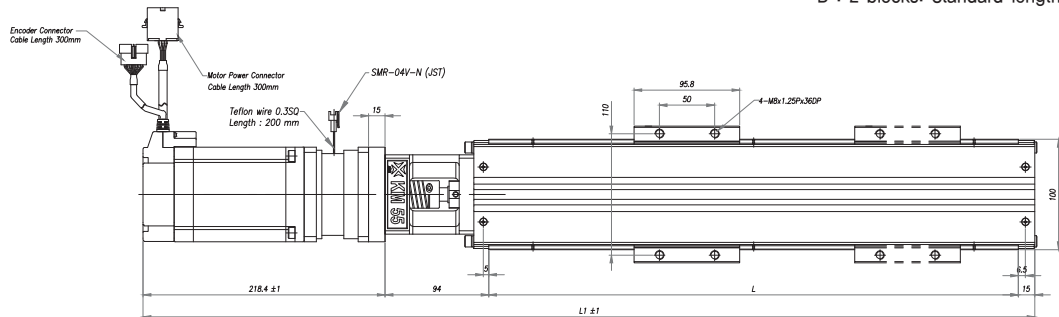
# MS55 Cover Type

A : 1 block: Standard length  
 B : 2 blocks: Standard length



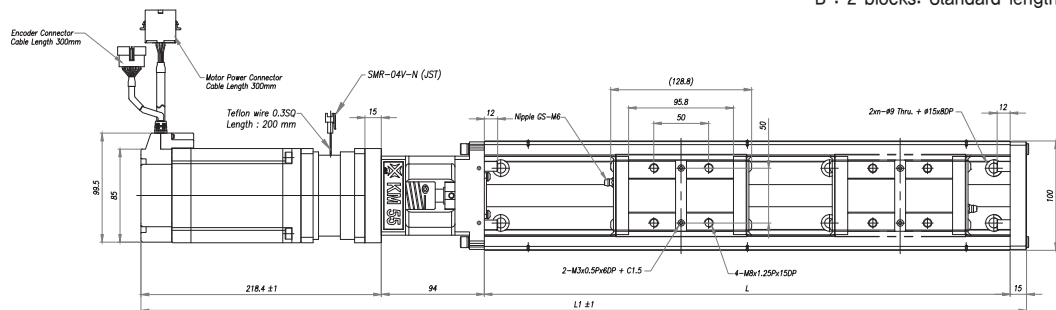
## MS55 Standard Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



## MS55 Cover Type + Brake

A : 1 block: Standard length  
B : 2 blocks: Standard length



Main Specifications of MS55 Series. (Carriage - Nut A,B Type)								
Motor Type		EzM-86L						
Rail Length L (mm)		980	1080	1180	1280	1380		
Maximum Stroke (mm)	A Type	828	928	1028	1128	1228		
	B Type <sup>Note1)</sup>	699	799	899	999	1099		
Main Dimension (mm)	Standard	L1	1249	1349	1449	1549	1649	
			1249	1349	1449	1549	1649	
			1307.4	1407.4	1507.4	1607.4	1707.4	
			1307.4	1407.4	1507.4	1607.4	1707.4	
	Common		F	150	150	150	150	
		E	40	15	65	40	15	
		E1	90	40	90	40	90	
Number of Actuator Mounting Holes		n	7	8	8	9	10	
Number of Sensor Mounting Holes		n1	5	6	6	7	7	
Maximum Travel Speed <sup>Note2)</sup> (mm/sec)		Lead 20mm	800		740	620	530	
Electromagnetic Brake Sustainability (N)		Lead 20mm	56					
Unit Weight (Kg)	No Brake	Standard	A Type	23,9	25,6	27,3	29,0	30,7
			B Type	25,6	27,3	29,0	30,7	32,0
		Cover	A Type	25,8	27,5	29,2	30,9	32,6
			B Type	28,2	29,9	31,6	33,3	34,6
	Brake is Attached	Standard	A Type	25,2	26,9	28,6	30,3	32,0
			B Type	26,9	28,6	30,3	32,0	33,3
		Cover	A Type	27,1	28,8	30,5	32,2	33,9
			B Type	29,5	31,2	32,9	34,6	35,9

Note1) B-type of stroke is in case of using 2 connected blocks.

Note2) Maximum travel speed in table is limited speed by driving motor's maximum rotation(3000rpm) of Unit product at no load and Ball Screw's Critical Speed.

## ● Combination of Pulse Input Drive and Motor

Unit Model Name		Motor Model Name	Drive Model Name
MS26	MS26-□-□-□-□+ST-42XL	EzM-42XL-A	EzS-PD-42XL-A
	MS26-□-□-□-□+MI-42XL	EzM-42XL-A	EzS-PD-MI-42XL-A
MS30	MS30-□-□-□-□+ST-42XL	EzM-42XL-A	EzS-PD-42XL-A
	MS30-□-□-□-□+MI-42XL	EzM-42XL-A	EzS-PD-MI-42XL-A
MS33	MS33-□-□-□-□+ST-56L	EzM-56L-A	EzS-PD-56L-A
MS45	MS45-□-□-□-□+ST-60L	EzM-60L-A	EzS-PD-60L-A
MS46	MS46-□-□-□-□+ST-86M	EzM-86M-A	EzS-PD-86M-A
MS55	MS55-□-□-□-□+ST-86L	EzM-86L-A	EzS-PD-86L-A

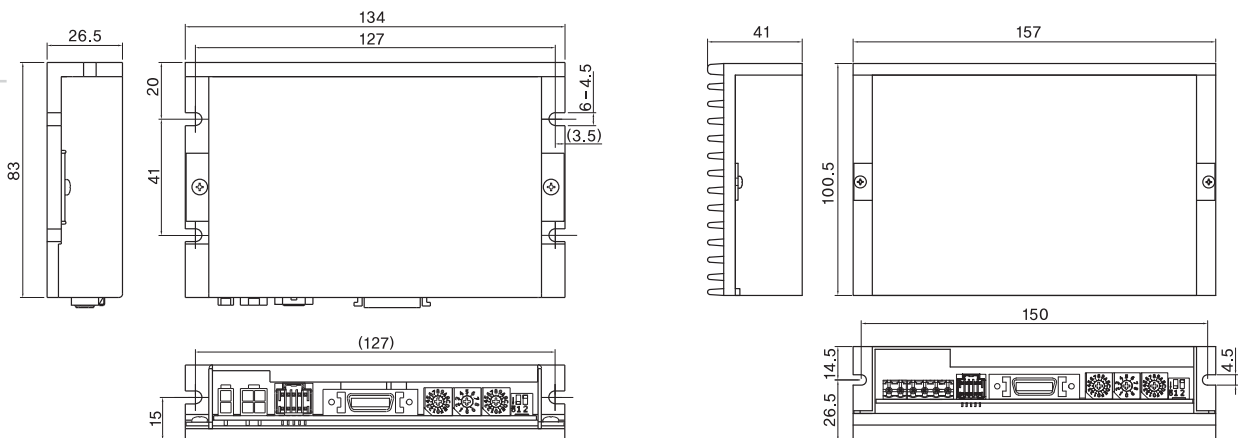
## ● Combination of Position Controller Embedded Drive and Motor

Unit Model Name		Motor Model Name	Drive Model Name
MS26	MS26-□-□-□-□+ST-42XL	EzM-42XL-A	EzS-NDR-42XL-A
	MS26-□-□-□-□+MIPR-42XL	EzM-42XL-A	EzS-NDR-MI-42XL-A
MS30	MS30-□-□-□-□+ST-42XL	EzM-42XL-A	EzS-NDR-42XL-A
	MS30-□-□-□-□+MIPR-42XL	EzM-42XL-A	EzS-NDR-MI-42XL-A
MS33	MS33-□-□-□-□+PR-56L	EzM-56L-A	EzS-NDR-56L-A
MS45	MS45-□-□-□-□+PR-60L	EzM-60L-A	EzS-NDR-60L-A
MS46	MS46-□-□-□-□+PR-86M	EzM-86M-A	EzS-NDR-86M-A
MS55	MS55-□-□-□-□+ST-86L	EzM-86L-A	EzS-NDR-86L-A

## ● Pulse Input Drive Specification

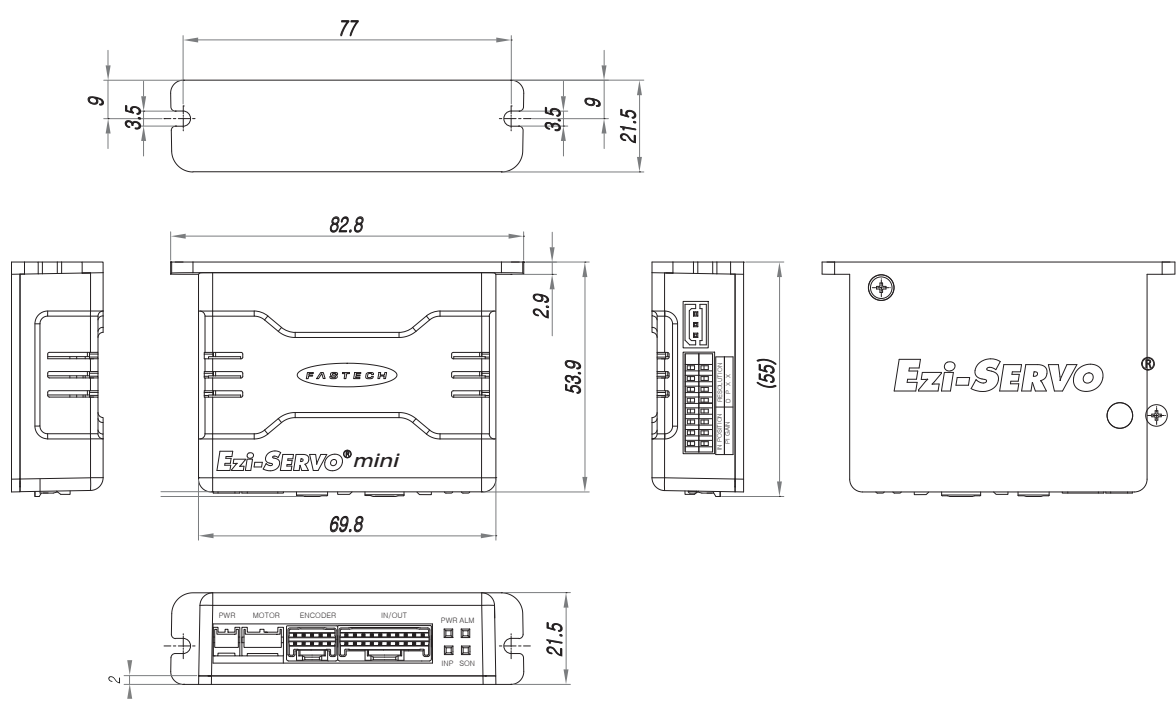
Motor Model	EzM-42 series	EzM-56 series	EzM-60 series	EzM-86 series
Driver Model	EzS-PD-42 series	EzS-PD-56 series	EzS-PD-60 series	EzS-PD-86 series
Input Voltage	24VDC±10%			40~70VDC
Control Method	Closed loop control with 32bit DSP			
Current Consumption	Max 500mA (Except motor current)			
Operating Condition	Ambient Temperature	In Use : 0~50°C In Storage : -20~70°C		
	Humidity	In Use : 35~85% (Non-Condensing) In Storage : 10~90% (Non-Condensing)		
	Vib. Resist.	0,5G		
Function	Rotation Speed	0~3,000rpm		
	Resolution(P/R)	4,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 4,000 10,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 16,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 16,000 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 Pulse Frequency	500KHz (Duty 50%)		
	Protection Functions	Over current, Over speed, Position tracking error, Over load, Over temperature, Over regenerated voltage, Motor connect error, Encoder connect error, Motor voltage error, In-Position error, System error, ROM error, Input voltage error, Position overflow error		
	LED Display	Power status, Alarm status, In-Position status, Servo On status		
	In-Position Selection	0~F (Selectable with Rotary switch)		
	Position Gain Selection	0~F (Selectable with Rotary switch)		
	Pulse Input Method	1-Pulse / 2-Pulse (Selectable with DIP switch)		
	Rotational Direction	CW / CCW (Selectable with DIP switch)		
	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 output) Encoder signal (A+, A-, B+, B-, Z+, Z-, 26C31 of Equivalent) (Line Driver output)		

## ● Position Controller Embedded Drive Dimension (mm)



※Drive only for 86mm motor (EzS-PD-86 Series)

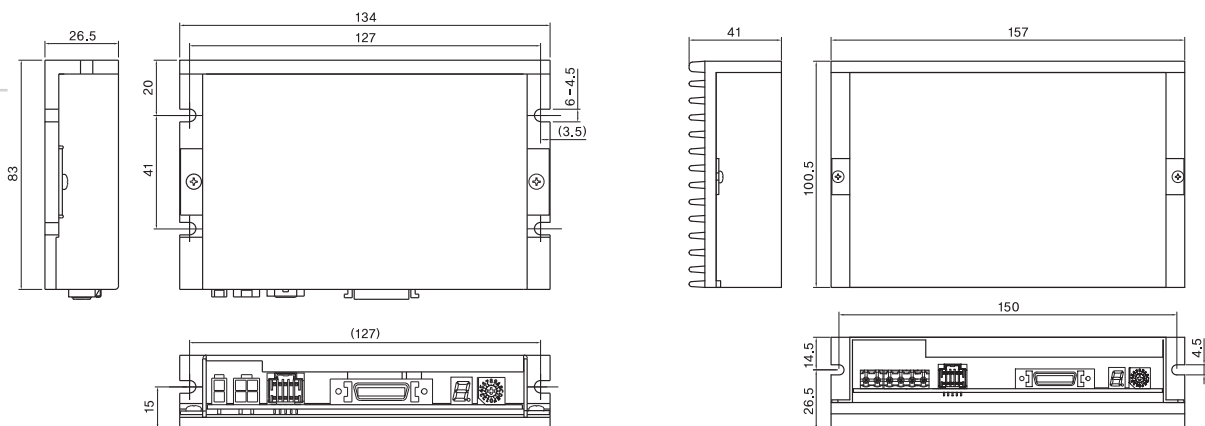
● Mini Type Position Controller Embedded Drive Dimension (mm)



## ● Position Controller Embedded Drive Dimension

Motor Model	EzM-42 series	EzM-56 series	EzM-60 series	EzM-86 series
Driver Model	EzS-NDR-42 series	EzS-NDR-56 series	EzS-NDR-60 series	EzS-NDR-86 series
Input Voltage	24VDC±10%			40~70VDC
Control Method	Closed loop control with 32bit DSP			
Multi Axes Drive	Maximum 16 axes through Daisy-Chain			
Position Table	256 motion command steps (Continuous, Wait, Loop, Jump and External start etc.)			
Current Consumption	Max 500mA (Except motor current)			
Operating Condition	Ambient Temperature	In Use : 0~50°C In Storage : -20~70°C		
	Humidity	In Use : 35~85% (Non-condensing) In Storage : 10~90% (Non-condensing)		
	Vib. Resist.	0.5G		
Function	Rotation Speed	0~3,000rpm		
	Resolution(P/R)	4,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 4,000 10,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 16,000/Rev, Encoder model : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 16,000 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		
	Protection Functions	Over current, Over speed, Position tracking error, Over load, Over temperature, Over regenerated voltage, Motor connect error, Encoder connect error, Motor voltage error, In-Position error, System error, ROM error, Input voltage error, Position overflow error		
	LED Display	Power status, Alarm status, In-Position status, Servo On status		
	In-Position Selection	0~15 (Selectable by parameter)		
	Position Gain Selection	0~15 (Selectable by parameter)		
	Rotational Direction	CW / CCW (Selectable by parameter)		
	I/O Signal	Input Signal	3 dedicated input (LIMIT+, LIMIT-, ORIGIN), 9 programmable input (Photocoupler)	
Output Signal		1 dedicated output (Compare Out), 9 programmable output (Photocoupler), Brake signal		
Communication Interface	The RS-485 serial communication with PC Transmission speed : 9,600~921,600bps			
Position Control	Incremental mode / Absolute mode Data Range : -134,217,727 to +134,217,727pulse, Operating speed : Max. 3,000rpm			
Return to Origin	Origin Sensor, Z phase, ±Limit sensor, Torque			
GUI	User Interface Program within Windows			
Software	Motion Library (DLL) for windows 2000/XP			

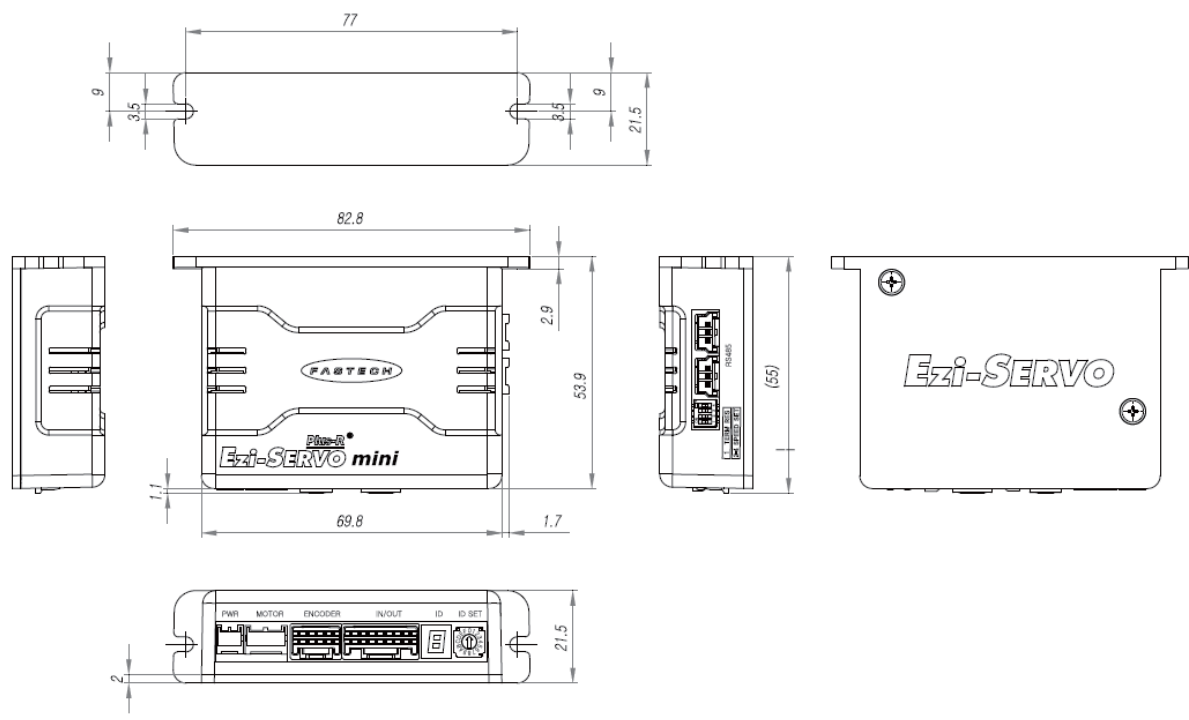
## ● Position Controller Embedded Drive Dimension (mm)



※Drive only for 86mm motor (EzS-PD-86 Series)



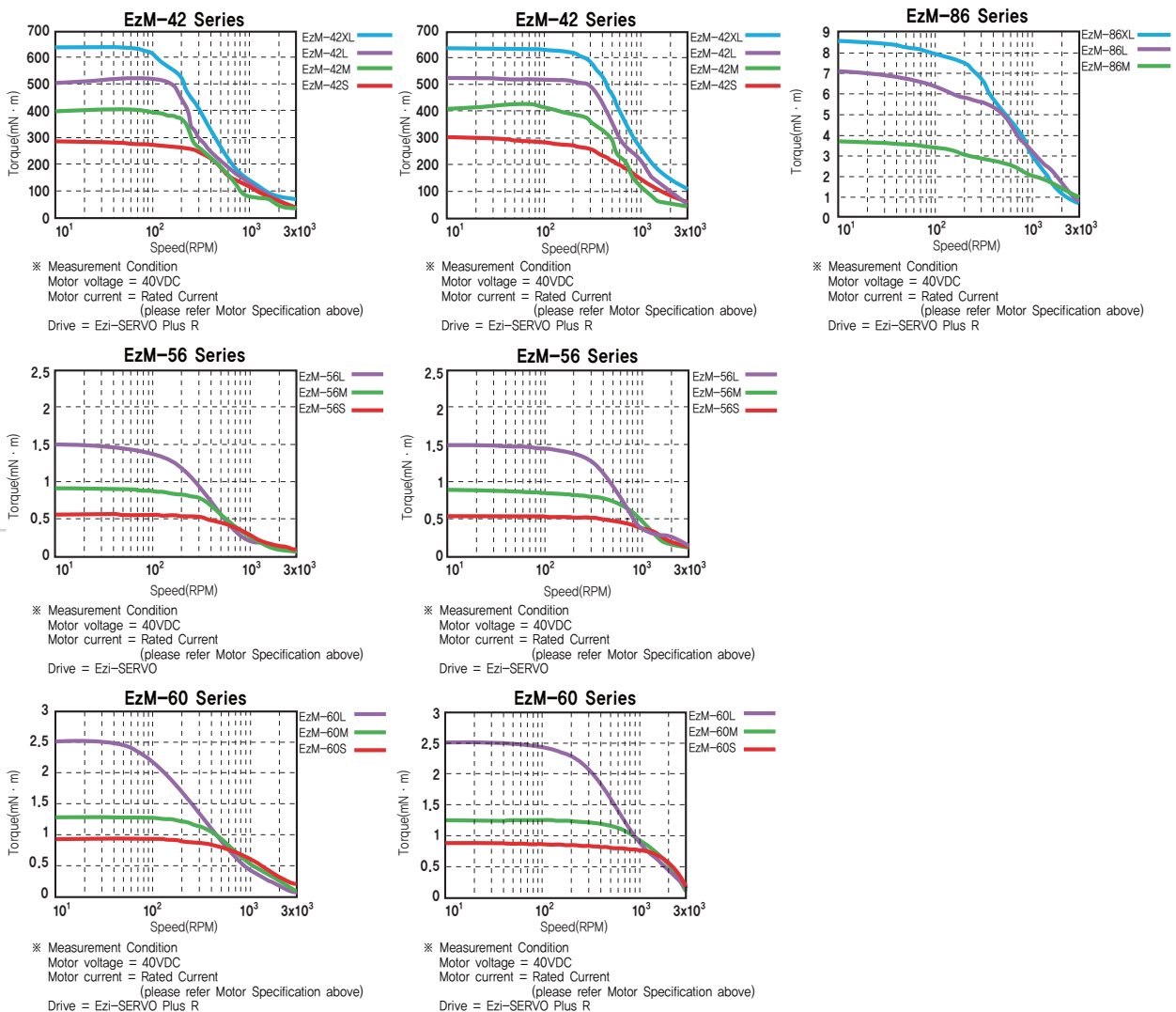
● Drive Controller Embedded Mini Plus-R Type Size (mm)



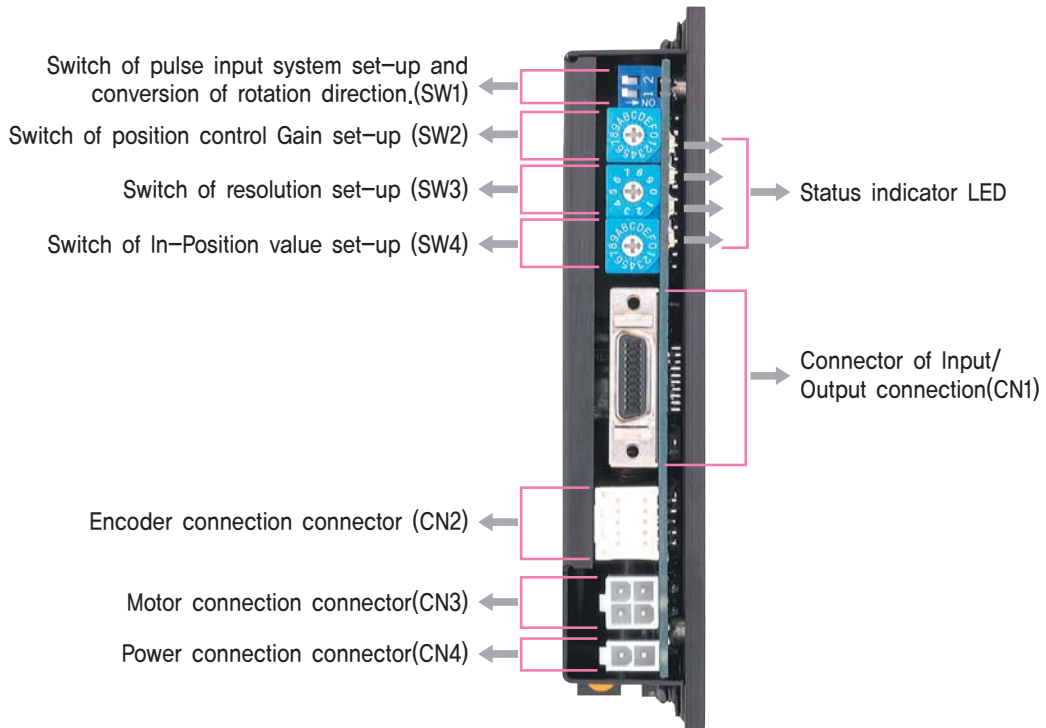
## ● Motor Specification (Pulse Input and Position Controller Embedded Drive)

Model	Unit	EzM-42XL-A	EzM-56L-A	EzM-60L-A	EzM-86M-A	EzM-86L-A
Drive Method	-	Bi-Polar	Bi-Polar	Bi-Polar	Bi-Polar	Bi-Polar
Number of Phase	-	2	2	2	2	2
Voltage	VDC	7,2	2,7	2,6	2,4	4,38
Current per Phase	A	1,2	3	4	6	6,0
Resistance per Phase	Ohm	6	0,9	0,65	0,4	0,73
Inductance per Phase	mH	15,6	3,8	2,5	3,5	8,68
Holding Torque	N · m	0,65	1,5	2,5	4,0	9,0
Rotor Inertia	g · cm <sup>2</sup>	114	480	800	1400	4000
Weight	g	500	1150	1600	2,3	5,3
Length	mm	59	80	90	79	155
Allowable Thrust Load	N	Lower than motor weight				
Insulation Resistance	Mohm	100min (at 500VDC)				
Insulation Class	-	Class B				
Operating Temperature	°C	0 to 55				

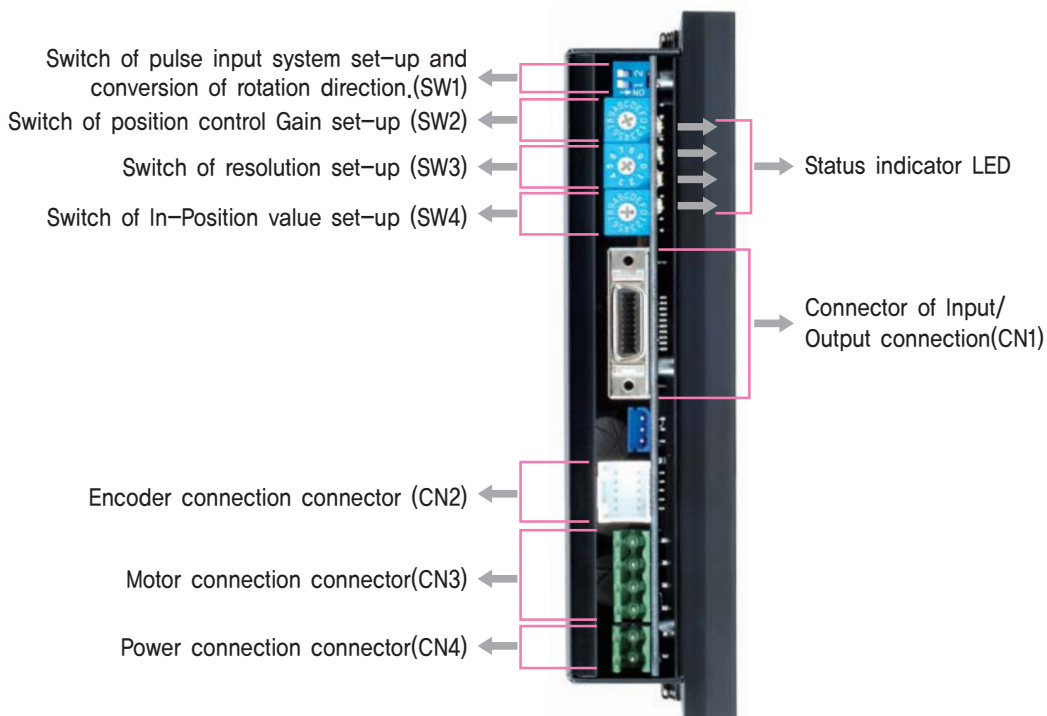
## ● Motor Torque Characteristic (Pulse Input and Position Controller Embedded Drive)



## ● Set-up and Operation of the Pulse Input Drive



### ◆ 86mm Motor Exclusive Drive(EzS-PD-86 Seris)

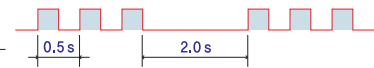


## 1. Status Indicator LED

Display	Color	Functions	ON/OFF Condition
PWR	Green	Power supplied	Lights up when the power is on
INP	Yellow	Positioning completion signal	Lights up when complete position command pulse and position deviation from target position is located within the sep up value to rotary switch
SON	Orange	Servo on/off status display	Servo on: Lights up Servo Off: Lights off
ALM	Red	Alarm display	Flash when protection function is activated (Identifiable which protection mode is activated by counting the blinking times)

### ◆ Content and Number of Protection Function

Times	Protection function	Condition
1	Over current	The current through a motor-driven device exceeds the limit value
2	Over speed	Motor speed exceed 3000rpm
3	Position tracking error	Difference between position command and the actual position is more than 90 while motor rotation
4	Over load	The load bigger than maximum torque of motor is applied more than 5seconds
5	Over Temperature	Internal temperature is over 55degree
6	Regenerative over voltage	Back-EMF of the motor exceeds the limit value*1
7	Motor connection error	There is an connection error between motor and drive
8	Encoder connection error	There is an connection error between drive and motor
9	Motor voltage error	If the motor supply voltage is less than the lower limit*2
10	In position error	After complete operation, position error (More than 1) is occurred more than 3 seconds
11	System error	An error occurred at drive system (Watch Dog timer)
12	ROM error	An error occurred at parameter recorder (ROM)
14	Input voltage error	Input voltage break from rated voltage*3
15	over position error	At motor stopped statue, position error occurred more than 90degree

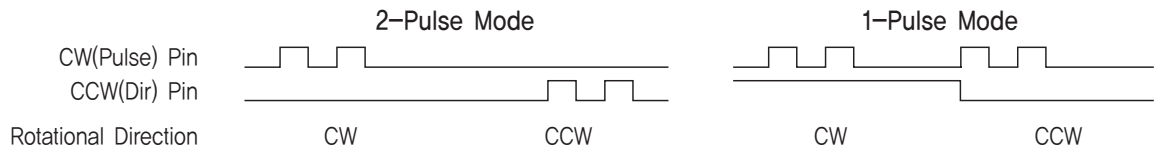


Alarm LED flash  
(ex : Position tracking error)

- \*1 : The limitation value of Back-EMF is different per motor. (Please refer to manual)
- \*2 : The lower limit value of supplied voltage is different per motor and drive. (Please refer to manual)
- \*3 : Rated voltage which is supplied to the drive is different per drive. (Please refer to manual)

## 2. Pulse Input System Setting Switch (SW1.1)

Display	Name of switch	Functions
2P/1P	Choice of pulse input mode	Can choose between 1-pulse mode or 2-pulse mode. ON: 1-Pulse input mode OFF: 2-Pulse input mode *set-up as 2-pulse mode when manufactured



## 3. Rotation Direction Convert Switch (SW1.2)

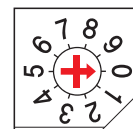
Display	Name of switch	Functions
DIR	Rotation direction convert switch (SW1.2)	CW input standard to Drive. ON: CCW(-direction) OFF: CW(+direction) *Set-up as CW when manufactured



## 4. Resolution Setting Switch (SW3)

Refers to the number of input pulses per revolution which is sent from the host controller.

Position	Pulse/Rotation	Position	Pulse/Rotation
0	500*1	5	3,600
1	500	6	5,000
2	1,000	7	6,400
3	1,600	8	7,200
4	2,000	9	10,000*2



\*1 : Resolution value depend on encoder type.

\*2 : Default = 10,000

### 5. Position Control Gain Setting Switch (SW2)

To adjust the response of the motor according to the load on the motor after motor stopped, Can be achieved quick and stabilized performance by adjusting the switch depending on the load of the motor.

–Set up procedures as following

1. Nominate switch to '0'
2. Turning the switch until motor response is settled.
3. From the current rotary switch position, adjust by moving switch to +,- position at 1 or 2 stages.

Position	Integral Part of the time constant	Proportional Gain*1
0	1	1
1	1	2
2	1	3
3*2	1	4
4	1	5
5	1	6
6	2	1
7	2	2
8	2	3
9	2	4
A	2	5
B	3	1
C	3	2
D	3	3
E	3	4
F	3	5

\*1 : The gain value is a relative value rather than the actual values that used in internal drive.  
 \*2 : Gain switch setting is 3 when manufactured.



### 6. In-Position Value Setting Switch (SW4)

Indicates the output condition of the positioning complete signal, Output the positioning complete signal when position deviation from the demand position is less than In-position value after completion of the position command.

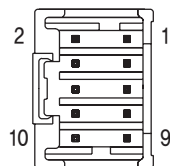
Position	In-Position Value[Pulse] Fast Response	Position	In-Position Value[Pulse] Accurate Response
0*1	0	8	0
1	1	9	1
2	2	A	2
3	3	B	3
4	4	C	4
5	5	D	5
6	6	E	6
7	7	F	7

\*1 : Setting value is '0' when manufactured.  
 ※Please refer to manual to find how to setting.



### 7. Encoder Connection Connector(CN2)

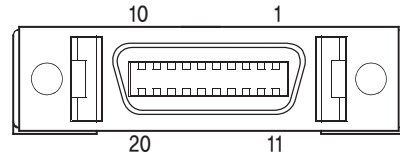
NO.	Functions	I/O
1	A+	Input
2	A-	Input
3	B+	Input
4	B-	Input
5	Z+	Input
6	Z-	Input
7	5VDC	Output
8	5VDC GND	Output
9	F. GND	----
10	F. GND	----



### 8. Input/Output Connection Connector (CN1)

NO.	Functions	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	NC	----
16	BRAKE+	Output
17	BRAKE-	Output
18	S-GND	Output
19	24VDC GND	Input
20	24VDC	Input

※Brake function is optional.  
 ※86mm Drive for motor has no Brake function.

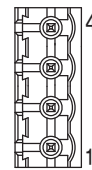


### 9. Motor Connection Connector(CN3)

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



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



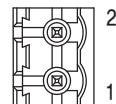
※For 86mm drive

### 10. Power Connection Connector(CN4)

NO.	Functions
1	24VDC ±10%
2	GND

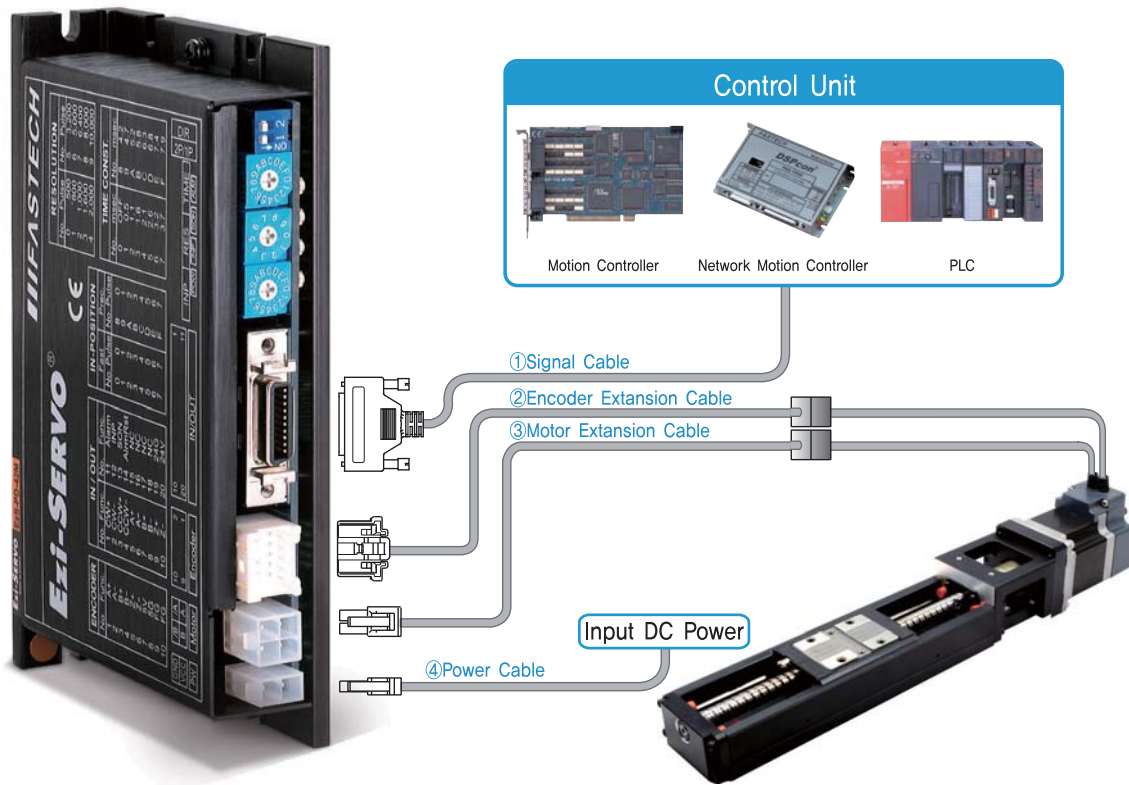


NO.	Functions
1	GND
2	40~70VDC



※For 86mm drive

# ● Pulse Input Drive System Configurations



Type	Power Cable	Motor Cable	Encoder Cable	Signal Cable
Standard Length	-	30cm	30cm	-
Max. Length	2m	20m	20m	20m

## 1. Cable Option

### ①Signal Cable

Cable for connect between Ezi-Servo drive and controller.

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.

### ②Encoder Extension Cable

extension cable for connect between Ezi-servo drive and encoder.

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.

### ③Motor Extension Cable

extension cable for connect between Ezi-servo drive and motor.

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.

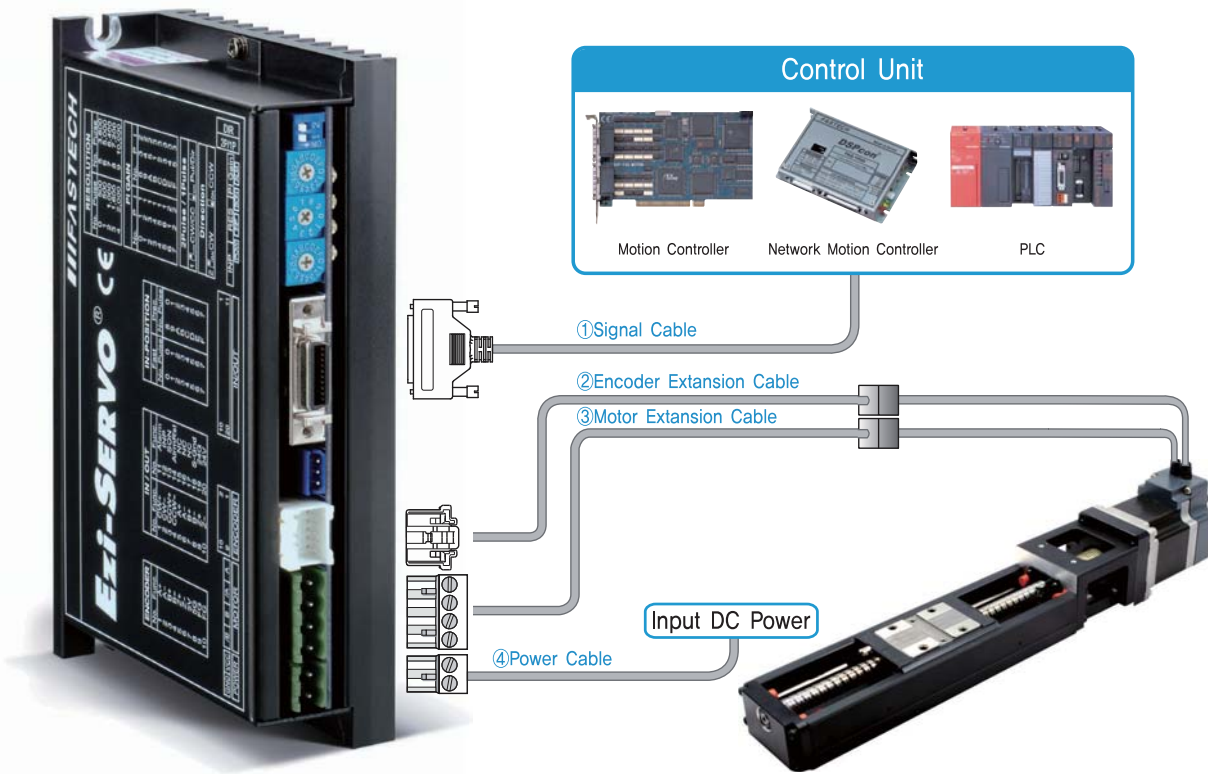
### ④Power Cable

cable for connect between Ezi-servo drive and power point.

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

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

# ● Pulse Heat Input of the Drive System Configuration (86mm Motors)



Type	Power Cable	Motor Cable	Encoder Cable	Signal Cable
Standard Length	–	30cm	30cm	–
Max. Length	2m	20m	20m	20m

## 1. Cable Option

### ①Signal Cable

Cable for connect between Ezi-Servo drive and controller.

Item	Length[m]	Remark
CSV0-S-□□□F	□□□	Normal Cable
CSV0-S-□□□M	□□□	Robot Cable

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

### ②Encoder Extension Cable

extension cable for connect between Ezi-servo drive and encoder.

Item	Length[m]	Remark
CSV0-E-□□□F	□□□	Normal Cable
CSV0-E-□□□M	□□□	Robot Cable

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

### ③Motor Extension Cable

extension cable for connect between Ezi-servo drive and motor.

Item	Length[m]	Remark
CSV0-M-□□□F	□□□	Normal Cable
CSV0-M-□□□M	□□□	Robot Cable

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

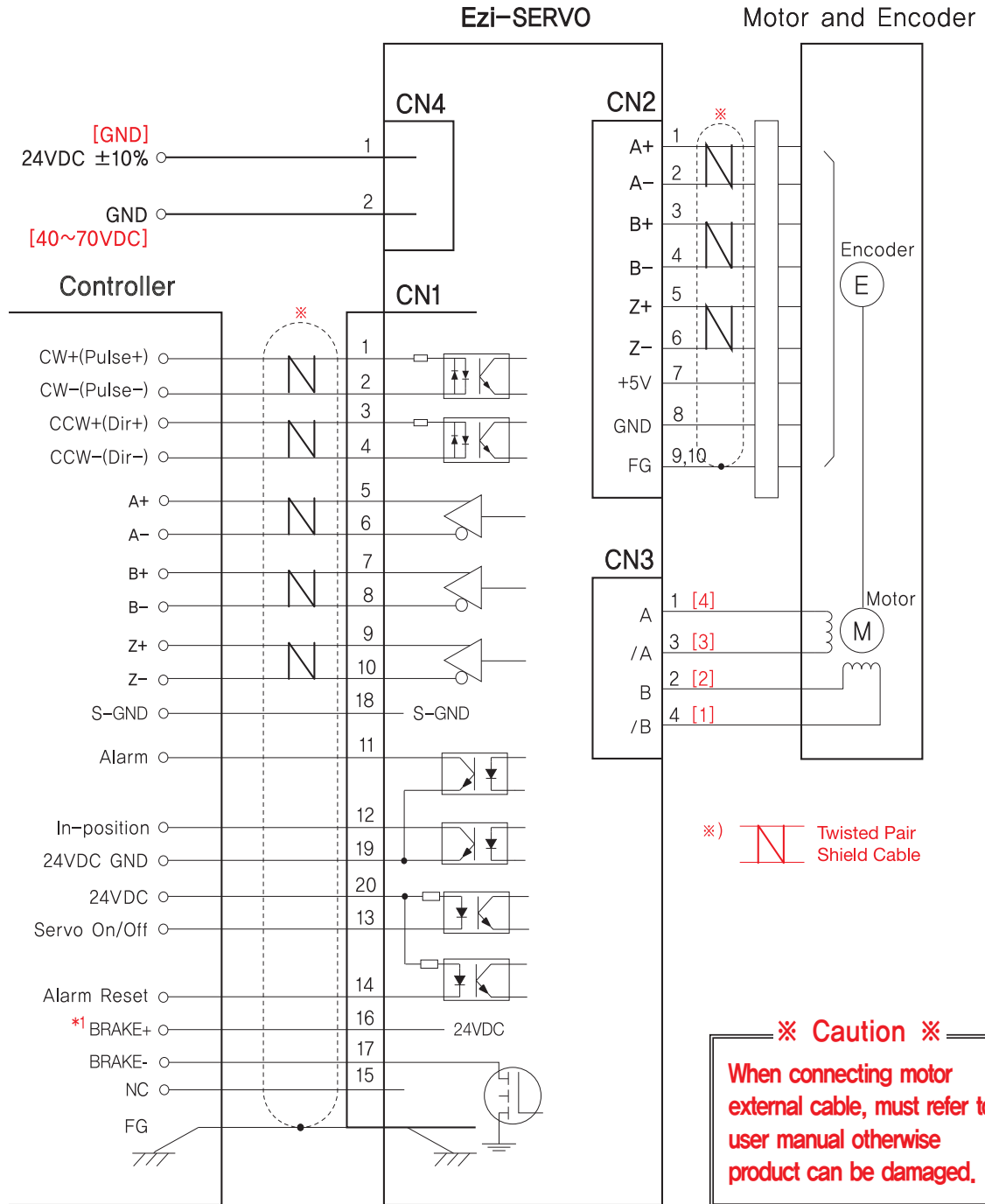
### ④Power Cable

cable for connect between Ezi-servo drive and power point.

Item	Length[m]	Remark
CSV0-P-□□□F	□□□	Normal Cable
CSV0-P-□□□M	□□□	Robot Cable

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

# Pulse Input Drive External Configuration



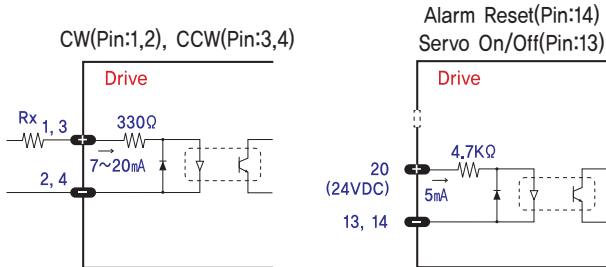
\* Red color is only 86mm motor drive.(EzS-PD-86 series) Pay attention to red color that describe the difference.  
 \*1 : There is no BRAKE function for 86mm motor drive.



# ● Explanation of Control Input/Output of Pulse Input Drive

## 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.



### ◆ Position Pulse Commands Input

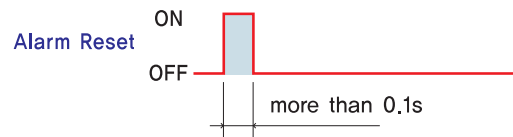
It is input of receiving position pulse command from motion controller which is operated by user and can choose input mode between 2-pulse input mode and 1-pulse input mode. (Please refer to "Pulse input mode setting switch (SW1,1) to find choice of position pulse commands input) CW, CCW input circuits were designed based on the 5V. Connect directly without using resistance Rx if CW, CCW input signal voltage is 5V. If CW, CCW input signal voltage is higher than 5V, need additional Rx. Internal circuits will be damaged if resistance is not added so have to use after add resistance. It is suitable to use 2.2Kohm when input signal voltage is 12V and 4.7Kohm when input signal voltage is 24V.

### ◆ Servo On/Off Input

Drive stop to supply the current to motor when Servo On/Off signal is [ON]. It became motor free status so device controlled by motor can be adjusted by hand. When Servo On/off signal is [off], drive supply the current to motor so holding torque is recovered. When operating motor have to set-up as [OFF].

### ◆ Alarm Reset Input

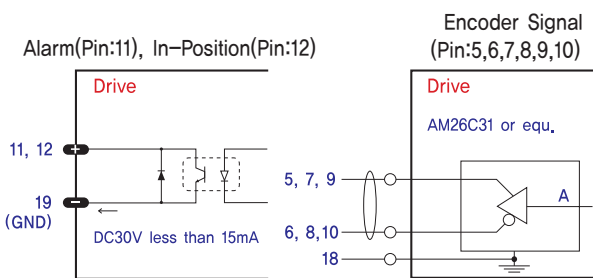
Off the Alarm output of the Drive which is protection function is on. When Alarm Reset input is [ON] Alarm output will be off. Need to eliminate the cause of Alarm before off the Alarm output. Even Alarm Reset input is [ON] drive does not operate correctly before remove the cause of the Alarm.



※Alarm Reset input is recognize the Drive input at the same status as the above picture.

## 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.



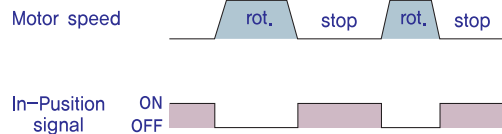
### ◆ Alarm Output

Alarm output is [ON] at normal state, and [OFF] at under protection. Motor operation command is stopped by detection of Alarm signal from upper controller which is controlled by user. If any problem occurred such as over load and over current while motor operating, drive will detect the problem and cut off the power supply. Also, inform the problem by flickering of Alarm LED at the same time as the alarm output is [OFF].

[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].

### ◆ In-Position Output

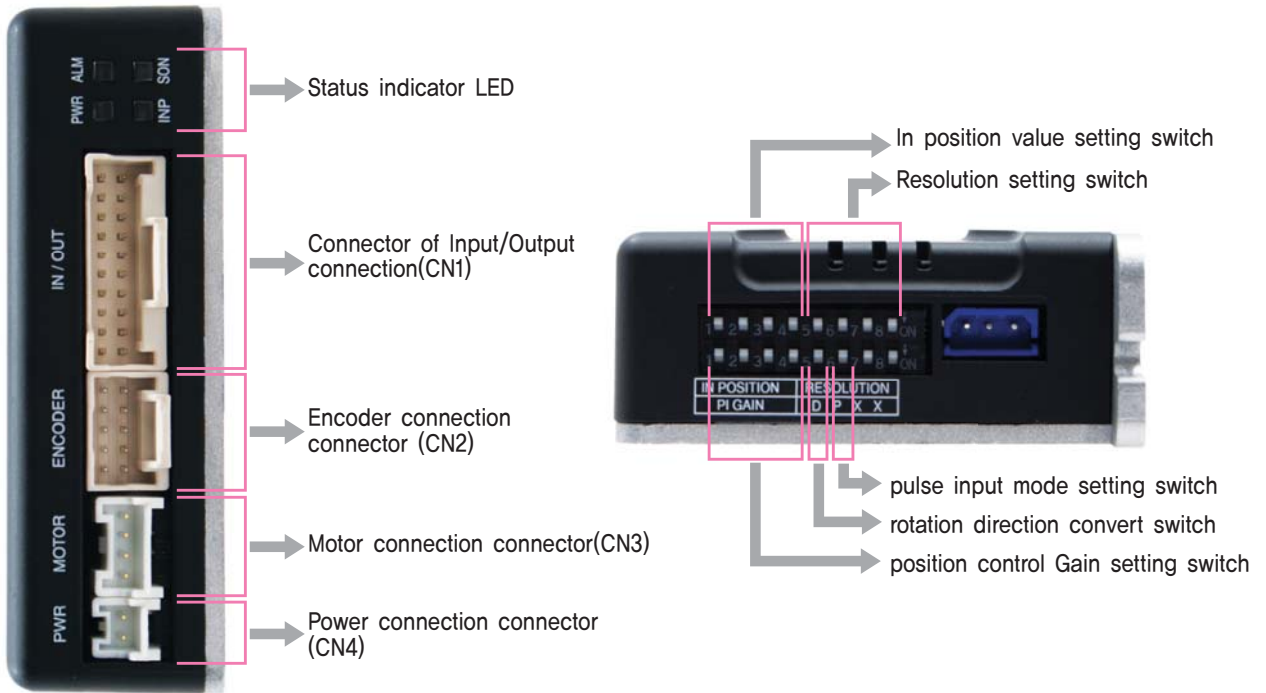
It is used for send movement of the motor to upper controller. In-position output is [ON] when operation of motor is stop. In-Position output become [ON] when motor stopped within position deviation that set-up by switch of position deviation selection (SW4)



### ◆ Encoder Output

Encoder Output signal is Line drive Output(Nearly 26C31) Please using for check stop position of motor.

# ● Setting and Operation of Mini Type Pulse Input Drive

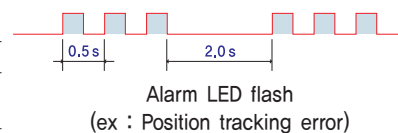


## 1. Status Indicator LED

Display	Color	Function	ON/OFF Condition
PWR	Green	Power supplied	Lights up when the power is on
INP	Green	Positioning completion signal	Lights up when complete position command pulse and position deviation from target position is located within the sep up value to rotary switch
SON	Orange	Positioning completion signal	Servo on: Lights up Servo Off: Lights off
ALM	Red	Alarm display	Flash when protection function is activated (Identifiable which protection mode is activated by counting the blinking times)

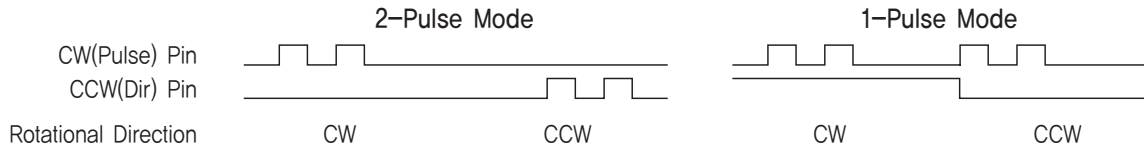
### ◆ Protection Functions and LED Flash Times

Times	Protection	Conditions
1	Over current	The current through a motor-driven device exceeds the limit value
2	Over speed	Motor speed exceed 3000rpm
3	Position tacking error	Difference between position command and the actual position is more than 90 while motor rotation
4	Over load	The load bigger than maximum torque of motor is applied more than 5seconds
5	Over Temperature	Internal temperature is over 55degree
6	Regenerative over voltage	Back-EMF of the motor exceeds the limit value
7	Motor connection error	There is an connection error between motor and drive
8	Encoder connection error	There is an connection error between drive and motor
9	Motor voltage error	If the motor supply voltage is less than the lower limit
10	In position error	After complete operation, position error (More than 1) is occurred more than 3 seconds
11	System error	An error occurred at drive system (Watch Dog timer)
12	ROM error	An error occurred at parameter recorder (ROM)
15	over position error	At motor stopped statue, position error occurred more than 90degree



## 2. Pulse Input Mode Setting Switch

Display	Name of switch	Functions
2P/1P	Selection of pulse input mode	Can choose between 1-pulse mode or 2-pulse mode ON: 1-Pulse input mode OFF: 2-Pulse input mode ※Set to 2-pulse mode when manufactured



## 3. Rotational Direction Selection Switch

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

Direction selection switch : ON

CCW direction



Direction selection switch : OFF

CW direction

## 4. Resolution Selection Switch

The Number of Pulse Per Revolution,

Switch Position				Pulse/ Revolution	Switch Position				Pulse/ Revolution
8	7	6	5		8	7	6	5	
ON	ON	ON	ON	4,000 or 16,000*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	NC
ON	ON	OFF	OFF	1,600	OFF	ON	OFF	OFF	NC
ON	OFF	ON	ON	2,000	OFF	OFF	ON	ON	NC
ON	OFF	ON	OFF	3,600	OFF	OFF	ON	OFF	NC
ON	OFF	OFF	ON	5,000	OFF	OFF	OFF	ON	NC
ON	OFF	OFF	OFF	6,400	OFF	OFF	OFF	OFF	NC

\*1 : Resolution value depend on encoder type.(Refer to the Manual)

\*2 : Default = 10,000

## 5. Position Controller Gain Selection Switch

The Position Controller Gain Switch allows for the correction of the motor position deviation after stopping caused by load and friction. Depending on the motor load, the user may have to select a different gain position to stabilize and to correct positional error quickly.

-To tune the controller

1. Set the switch to "ON" position.
2. Start to rotate the switch until system becomes stable.
3. Rotate the switch 1~2 position to reach better performance.

Switch Position				Time Constant of the Integral part	Proportional Gain*1
4	3	2	1		
ON	ON	ON	ON	1	1
ON	ON	ON	OFF	1	2
ON	ON	OFF	ON	1	3
ON	ON	OFF	OFF	1	4*2
ON	OFF	ON	ON	1	5
ON	OFF	ON	OFF	1	6
ON	OFF	OFF	ON	2	1
ON	OFF	OFF	OFF	2	2
OFF	ON	ON	ON	2	3
OFF	ON	ON	OFF	2	4
OFF	ON	OFF	ON	2	5
OFF	ON	OFF	ON	3	1
OFF	OFF	ON	ON	3	2
OFF	OFF	ON	OFF	3	3
OFF	OFF	OFF	ON	3	4
OFF	OFF	OFF	OFF	3	5

\*1 : Value in the columns are in relative units. They only show the parameter changes depending on the switch's position.

\*2 : Default = ON ON OFF OFF

## 6. In-Position Value Setting Switch

To select the output condition of In-position 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.

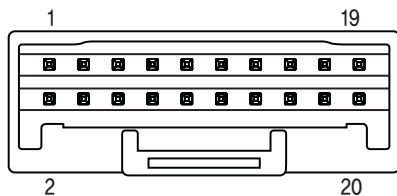
Switch Position				In-Position Value[Pulse] Fast Response	Switch Position				In-Position Value[Pulse] Fast Response
4	3	2	1		4	3	2	1	
ON	ON	ON	ON	0*1	OFF	ON	ON	ON	0
ON	ON	ON	OFF	1	OFF	ON	ON	OFF	1
ON	ON	OFF	ON	2	OFF	ON	OFF	ON	2
ON	ON	OFF	OFF	3	OFF	ON	OFF	OFF	3
ON	OFF	ON	ON	4	OFF	OFF	ON	ON	4
ON	OFF	ON	OFF	5	OFF	OFF	ON	OFF	5
ON	OFF	OFF	ON	6	OFF	OFF	OFF	ON	6
ON	OFF	OFF	OFF	7	OFF	OFF	OFF	OFF	7

\*1 : Default = 0

※Please refer to User Manual for setup.

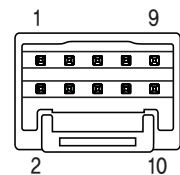
## 7. Input/Output Signal(CN1)

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	NC	----
16	BRAKE+	Output
17	BRAKE-	Output
18	S-GND	Output
19	24VDC GND	Input
20	24VDC	Input



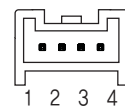
## 8. Encoder Connector(CN2)

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



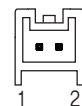
## 9. Motor Connector(CN3)

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

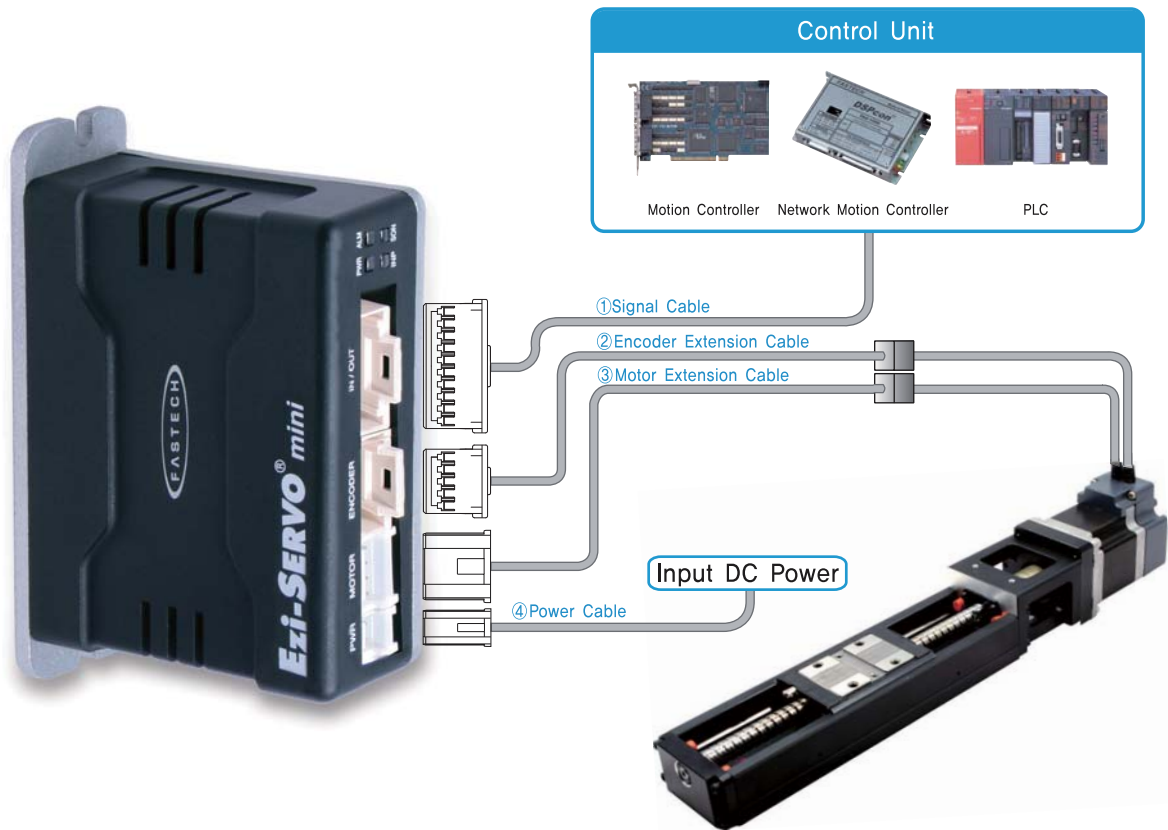


## 10. Power Connector(CN4)

NO.	Function
1	24VDC±10%
2	GND



# ● Mini Type Pulse Input Drive System Configurations



Type	Signal Cable	Encoder Cable	Motor Cable	Power Cable
Standard Length	-	30cm	30cm	-
Max. Length	20m	20m	20m	2m

## 1. Cable Option

### ①Signal Cable

Available to connect between Control System and Ezi-SERVO MINI.

Item	Length[m]	Remark
CSV1-S-□□□F	□□□	Normal Cable
CSV1-S-□□□M	□□□	Robot Cable

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

### ②Encoder Extension Cable

Available to extended connection between Encoder and Ezi-SERVO MINI.

Item	Length[m]	Remark
CSV1-E-□□□F	□□□	Normal Cable
CSV1-E-□□□M	□□□	Robot Cable

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

### ③Motor Extension Cable

Available to extended connection between motor and Ezi-SERVO MINI.

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

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

### ④Power Cable

Available to connect between Power and Ezi-SERVO MINI.

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

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

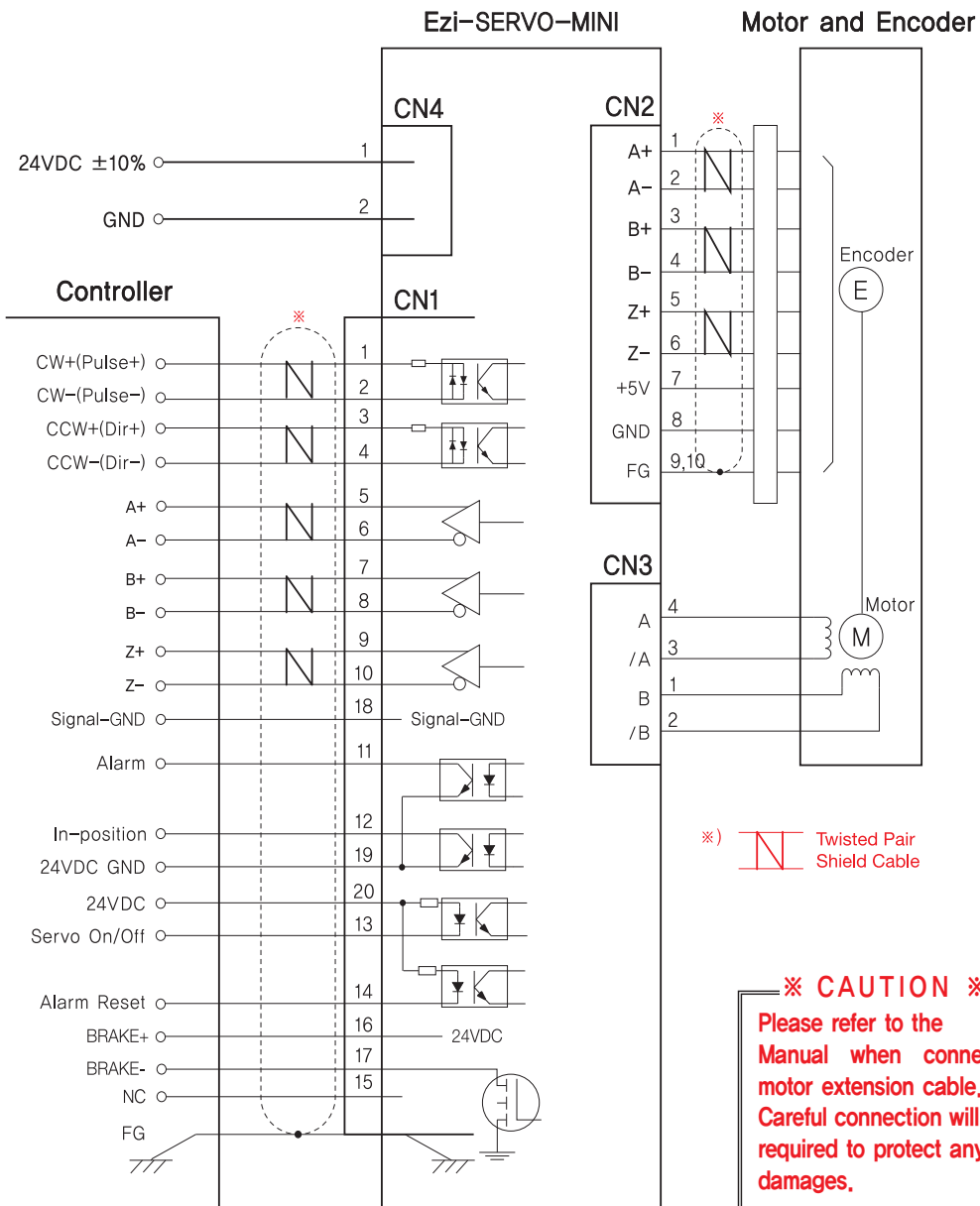
## 2. Connector for Cabling

Purpose	ITEM	Specification	Marker
Input and output connection (CN1)	Housing	501646-2000	MOLEX
	Terminal	501648-1000(AWG 26~28)	MOLEX
Encoder connection (CN2)	Housing	501646-1000	MOLEX
	Terminal	501648-1000(AWG 26~28)	MOLEX
Motor connection (CN3)	Housing	PAP-04V-S	JST
	Terminal	SPHD-001T-P0,5	JST
Power connection (CN4)	Housing	PAP-02V-S	JST
	Terminal	SPHD-001T-P0,5	JST

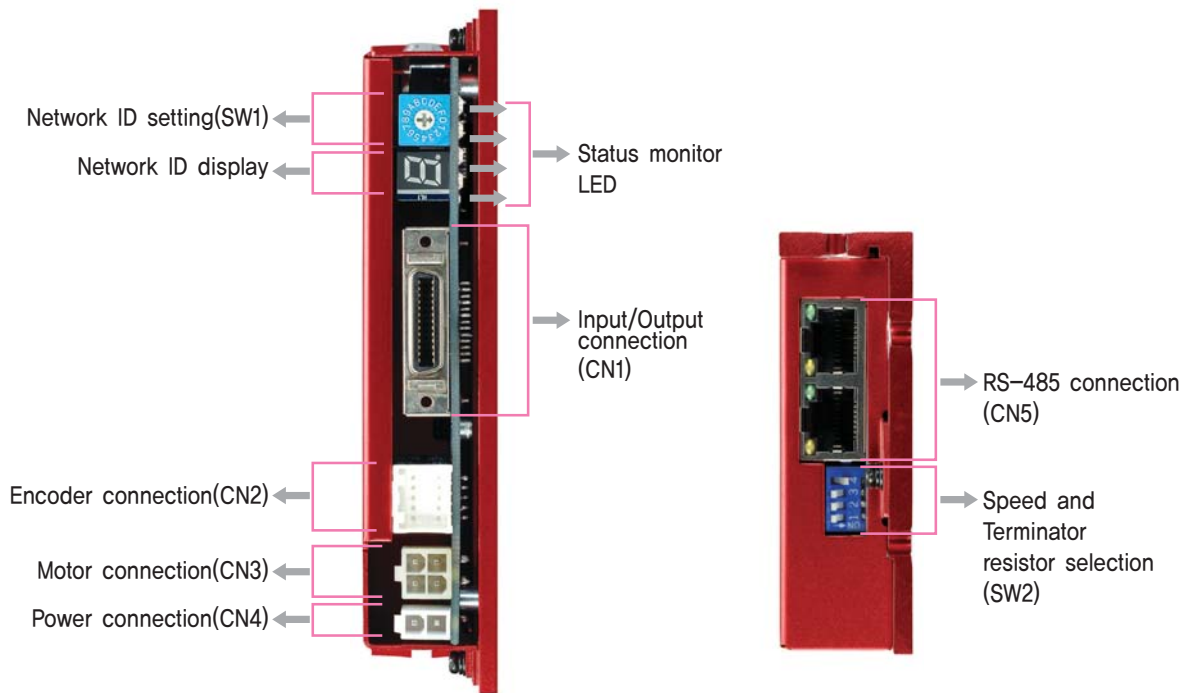
※These connectors are serviced together with Ezi-SERVO MINI except when purchasing option cables.

※Above connector is the most suitable product for Ezi-SERVO MINI, Another equivalent connector can be used.

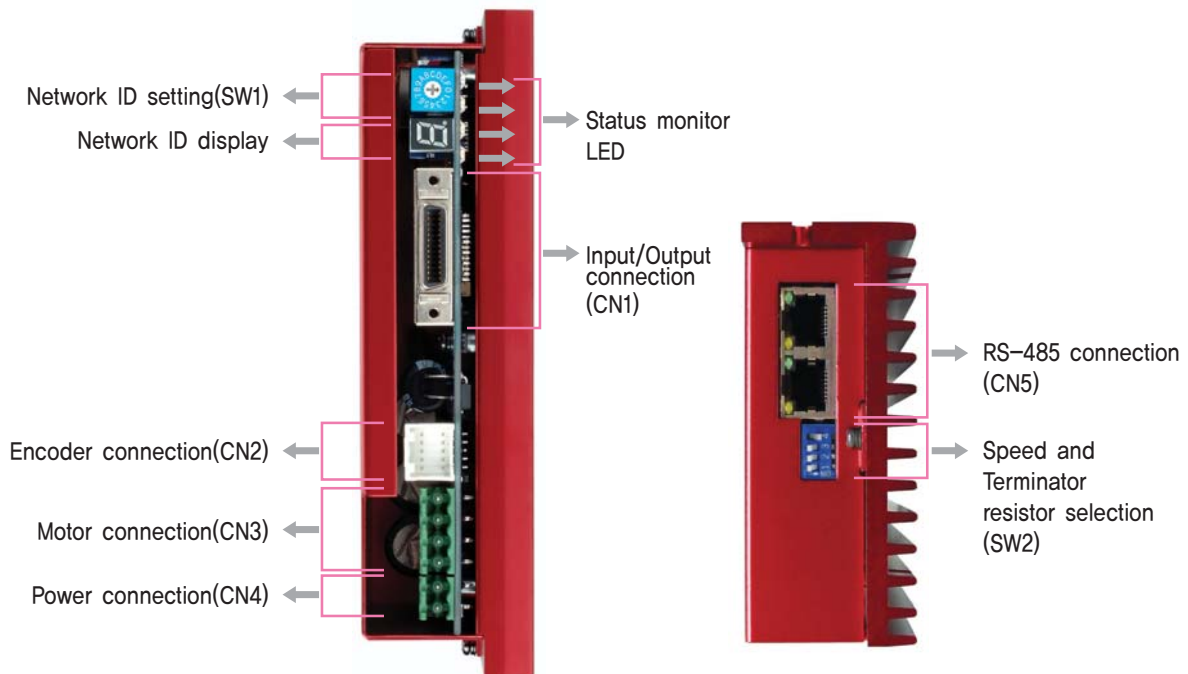
### ● Mini Type Pulse Input Drive External Configuration



## ● Position Controller Embedded Drive Setting and Operation



### ◆ 86mm Motor Drive Only(EzS-NDR-86 Series)

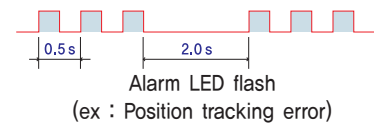


## 1. Status Monitor LED

Display	Color	Function	ON/OFF Condition
PWR	Green	Power supplied	Lights up when the power is on
INP	Green	Positioning completion signal	Lights up when complete position command pulse and position deviation from target position is located within the sep up value to rotary switch
SON	Orange	Positioning completion signal	Servo on: Lights up Servo Off: Lights off
ALM	Red	Alarm display	Flash when protection function is activated (Identifiable which protection mode is activated by counting the blinking times)

### ◆ Protection Functions and LED Flash Times

Times	Protection	Conditions
1	Over current	The current through power devices in inverter exceeds the limit value
2	Over speed	Motor speed exceed 3,000rpm
3	Position tracking error	Position error value is higher than 90° in motor run state*1
4	Over load	The motor is continuously operated more than 5 second under a load exceeding the max. torque
5	Over temperature	Inside temperature of drive exceeds 55°C
6	Over regenerated voltage	Back-EMF more high limit value*2
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
9	Motor voltage error	Motor voltage is out of limited value*3
10	In-Position error	After operation is finished, a position error occurs
11	System error	Error occurs in drive system
12	ROM error	Error occurs in parameter storage device(ROM)
14	Input voltage error	Power source voltage is out of limited value*4
15	Position overflow error	Position error value is higher than 90° in motor stop state*1



- \*1 : The given value can be changed by parameter. (Please refer manual)
- \*2 : Voltage limit of Back-EMF depends on motor model (Refer to the Manual)
- \*3 : Motor limit voltage value depends on motor model (Refer to the Manual)
- \*4 : Limit value provided to drives depends on driver model (Refer to the Manual)

## 2. Network ID Selection Switch(SW1)

Position	ID number	Position	ID number
0	0	8	8
1	1	9	9
2	2	A	10
3	3	B	11
4	4	C	12
5	5	D	13
6	6	E	14
7	7	F	15



※Maximum 16 axis can be connected in one network.

## 3. Speed and Terminator Resistor Selection Switch(SW2)

The purpose of this is to setting the communication speed and connect a terminator resistor if drive is installed at the end of network.

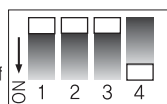
SW 2.1 used for connecting the terminator resistor.  
SW 2.2~SW 2.4 used for setting speed as follows.

SW 2.1	SW 2.2	SW 2.3	SW 2.4	Baud Rate[bps]
–	OFF	OFF	OFF	9,600
–	ON	OFF	OFF	19,200
–	OFF	ON	OFF	38,400
–	ON	ON	OFF	57,600
–	OFF	OFF	ON	115,200*1
–	ON	OFF	ON	230,400
–	OFF	ON	ON	460,800
–	ON	ON	ON	921,600

※For the high speed communication, PCI Bus type RS-485 communication board can be used. (Pease inquire to distributor)

\*1 : Default setting value

If SW2.1 is OFF, terminator resistor is disconnected. If SW2.2 is ON, terminator resistor is connected.

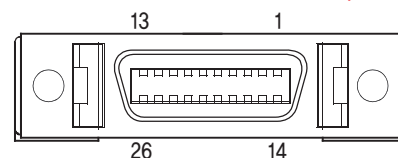


## 4. Input/Output Signal(CN1)

NO.	Function	I/O
1	LIMIT+	Input
2	LIMIT-	Input
3	ORIGIN	Input
4	Digital In1	Input
5	Digital In6	Input
6	Digital In7	Input
7	Compare Out1	Output
8	Digital Out1	Output
9	Digital Out2	Output
10	Digital Out3	Output
11	Digital Out4	Output
12	Digital Out5	Output
13	Digital Out6	Output
14	Digital In2	Input
15	Digital In3	Input
16	Digital In4	Input
17	Digital In5	Input
18	Digital In8	Input
19	Digital In9	Input
20	Digital Out7	Output
21	Digital Out8	Output
22	Digital Out9	Output
23	BRAKE+	Output
24	BRAKE-	Output
25	24VDC GND	Input
26	24VDC	Input

※BRAKE function is optional.

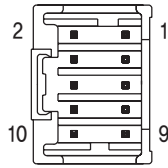
※There is no BRAKE function for 86mm motor drive.





### 5. 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	5VDC	Output
8	5VDC GND	Output
9	F. GND	----
10	F. GND	----

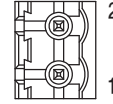


### 7. Power Connector(CN4)

NO.	Function
1	24VDC±10%
2	GND

NO.	Function
1	GND
2	40~70VDC



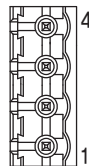
※Only for 86mm motor drive.

### 6. Motor Connector(CN3)

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



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



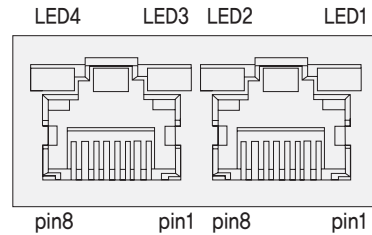
※Only for 86mm motor drive.

### 8. RS-485 Communication Connector(CN5)

There is converter for connecting PC.

1)RS-232 to RS-485

NO.	Function	NO.	Function
1	GND	6	Data-
2	GND	7	GND
3	Data+	8	GND
4	GND	LED 1, 3	Drive status
5	GND	LED 2, 4	Communication status



### ◆ Connector for Cabling

These connectors are serviced together with Ezi-SERVO Plus-R except when purchasing option cables.

#### CN1 : Input/Output Connector

Item	Specification	Maker
Connector	10126-3000PE	3M
Shell	10326-52FO-008	3M

#### CN2 : Encoder Connector

Item	Specification	Maker
Housing	51353-1000	MOLEX
Terminal	56134-9000	MOLEX

#### CN3 : Motor Connector

Item	Specification	Maker
Housing	5557-04R	MOLEX
Terminal	5556T	MOLEX

#### CN4 : Power Connector

Item	Specification	Maker
Housing	5557-02R	MOLEX
Terminal	5556T	MOLEX

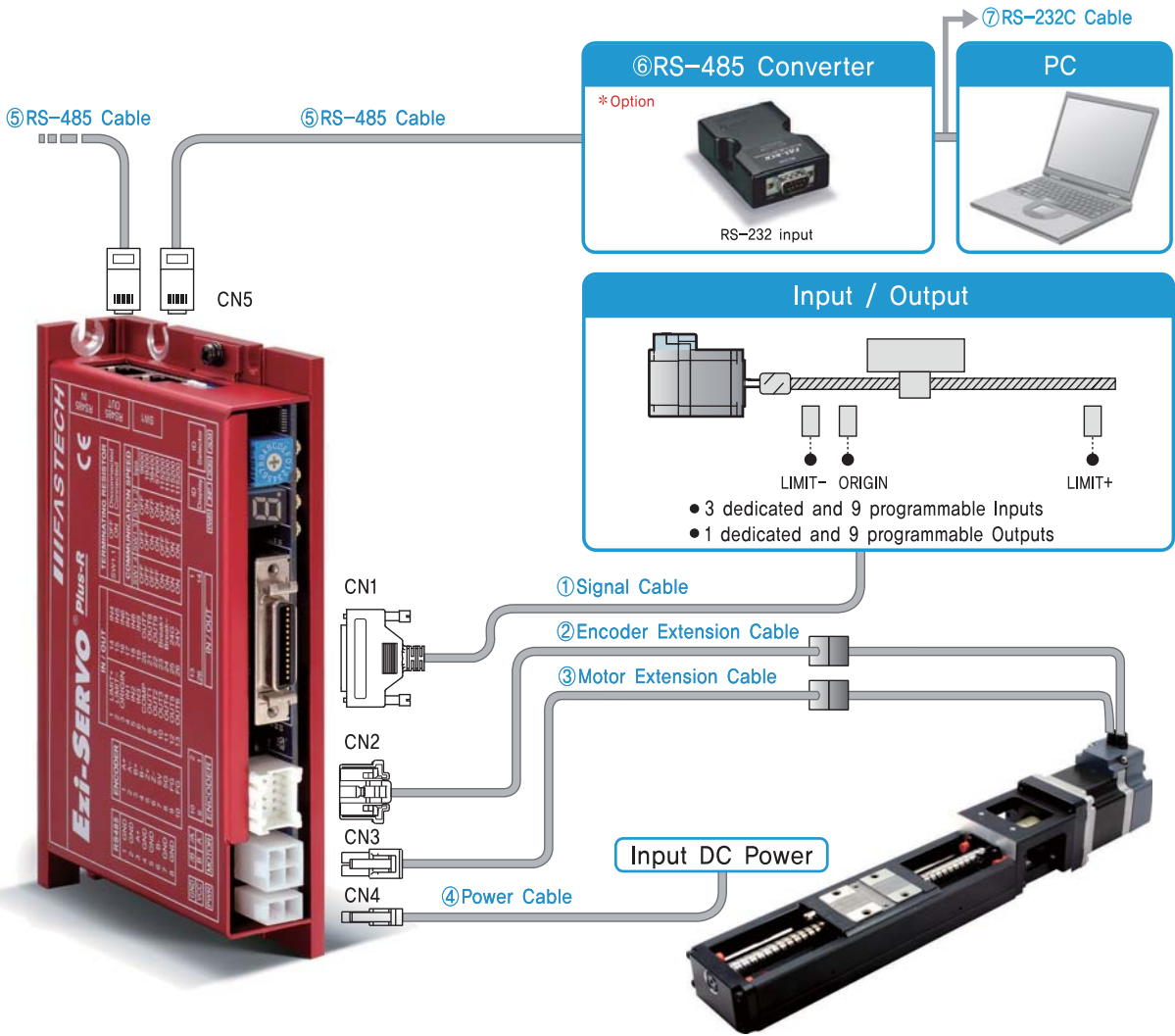
#### CN3 : Motor Connector(86mm Motor Drive Only)

Item	Specification	Maker
Terminal Block	AK950-4	PTR
Housing	3191-4RI	MOLEX
Terminal	138IT	MOLEX

#### CN4 : Power Connector(86mm Motor Drive Only)

Item	Specification	Maker
Terminal Block	AK950-2	PTR

# ● Position Controller Embedded Drive System Configurations



Type	Signal Cable	Encoder Cable	Motor Cable	Power Cable	RS-485 Cable
Standard Length	-	30cm	30cm	-	-
Max. Length	20m	20m	20m	2m	30m

FASTECH Ezi-Robo Mono-Stage

## 1. Cable Option

### ①Signal Cable

Available to connect between Control System and Ezi-SERVO Plus-R.

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

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

### ②Encoder Extension Cable

Available to extended connection between Encoder and Ezi-SERVO Plus-R.

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

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

### ③Motor Extension Cable

Available to extended connection between motor and Ezi-SERVO Plus-R,

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

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

### ④Power Cable

Available to connect between Power and Ezi-SERVO Plus-R,

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

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

### ⑤RS-485 Cable

Item	Length[m]	Remark
CGNR-R-0R6F	0,5	Normal Cable
CGNR-R-001F	1	
CGNR-R-1R5F	1,5	
CGNR-R-002F	2	
CGNR-R-003F	3	
CGNR-R-005F	5	

## 2. Option (Sold separately)

### ⑥FAS-RCR(RS-232C to RS-485 Converter)

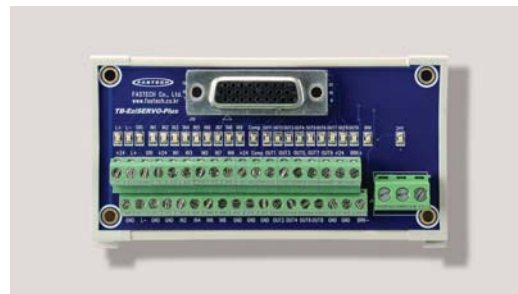
Item	Specification
Comm, Speed	Max, 115,2Kbps
Comm, Distance	RS-232C : Max, 15m RS-485 : Max, 1,2km
Connector Type	RS-232C : DB9 Female RS-485 : RJ-45
Dimension	50X75X23mm
Weight	38g
Power	Powered from PC (Usable for external DC5~24V)

### ⑦RS-232C Cable

Item	Length[m]	Remark
CGNR-C-002F	2	Normal Cable
CGNR-C-003F	3	
CGNR-C-005F	5	

### ⑧TB-Plus(Interface Board)

Available to connect more conveniently between Input/Output signal and Ezi-SERVO Plus-R,



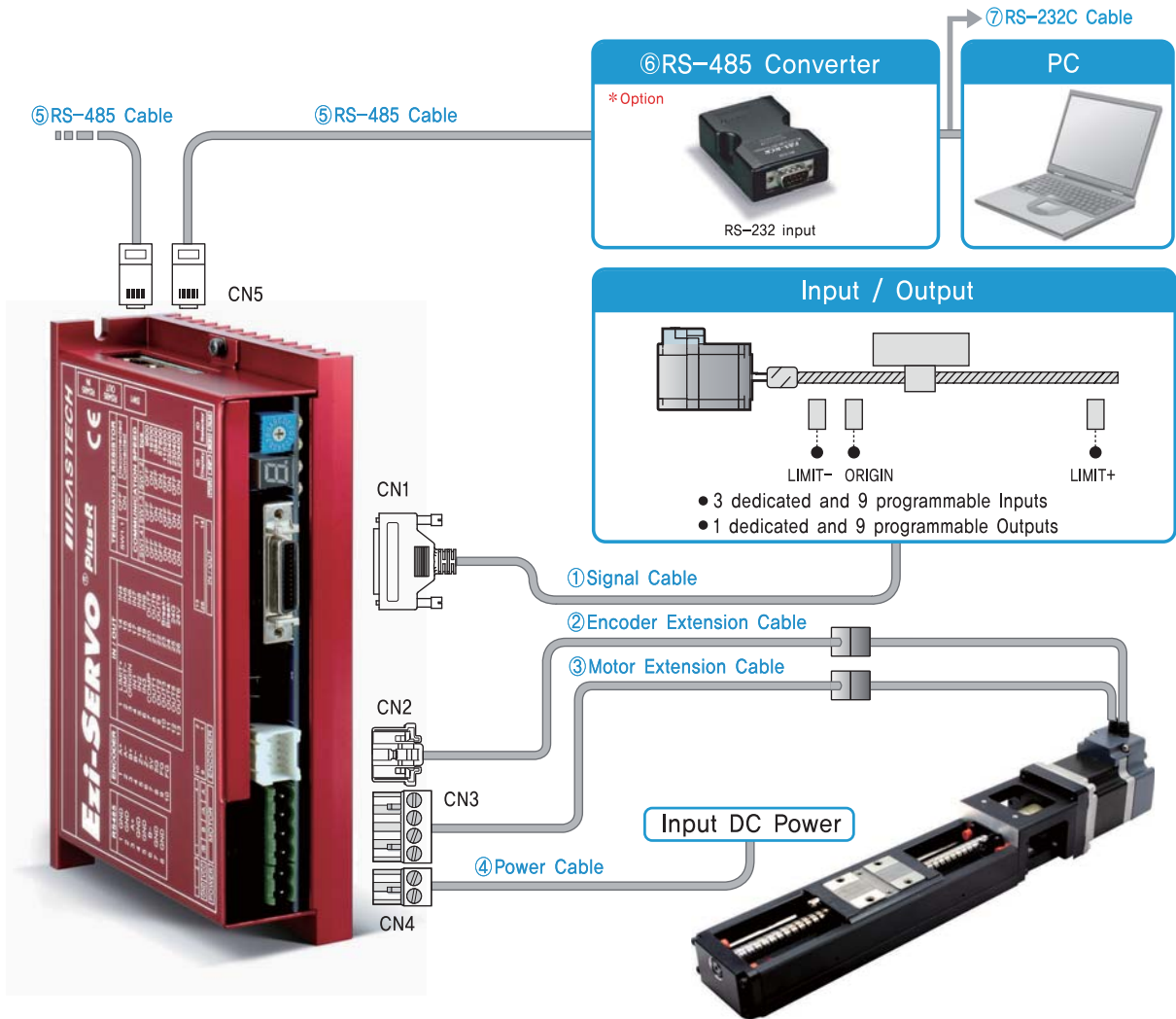
#### Interface Cable

Available to Connect between TB-Plus Interface Board and Ezi-SERVO Plus-R,

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

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

# ● Position Controller Embedded Drive System Configuration.(86mm Motor)



FASTECH Ezi-Robo Mono-Stage

Type	Signal Cable	Encoder Cable	Motor Cable	Power Cable	RS-485 Cable
Standard Length	-	30cm	30cm	-	-
Max. Length	20m	20m	20m	2m	30m

## 1. Cable Option

### ①Signal Cable

Available to connect between Control System and Ezi-SERVO Plus-R,

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

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

### ②Encoder Extension Cable

Available to extended connection between Encoder and Ezi-SERVO Plus-R,

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.

### ③Motor Extension Cable

Available to extended connection between motor and Ezi-SERVO Plus-R.

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

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

### ④Power Cable

Available to connect between Power and Ezi-SERVO Plus-R.

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

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

### ⑤RS-485 Cable

Item	Length[m]	Remark
CGNR-R-0R6F	0,6	Normal Cable
CGNR-R-001F	1	
CGNR-R-1R5F	1,5	
CGNR-R-002F	2	
CGNR-R-003F	3	
CGNR-R-005F	5	

## 2. Option

### ⑥FAS-RCR(RS-232C to RS-485 Converter)

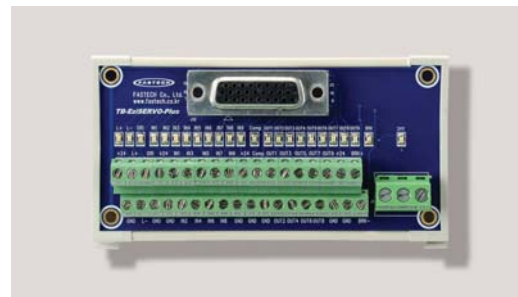
Item	Specification
Comm. Speed	Max, 115,2Kbps
Comm. Distance	RS-232C : Max, 15m RS-485 : Max, 1,2km
Connector Type	RS-232C : DB9 Female RS-485 : RJ-45
Dimension	50X75X23mm
Weight	38g
Power	Powered from PC (Usable for external DC5~24V)

### ⑦RS-232C Cable

Item	Length[m]	Remark
CGNR-C-002F	2	Normal Cable
CGNR-C-003F	3	
CGNR-C-005F	5	

### ⑧TB-Plus(Interface Board)

Available to connect more conveniently between Input/Output signal and Ezi-SERVO Plus-R.



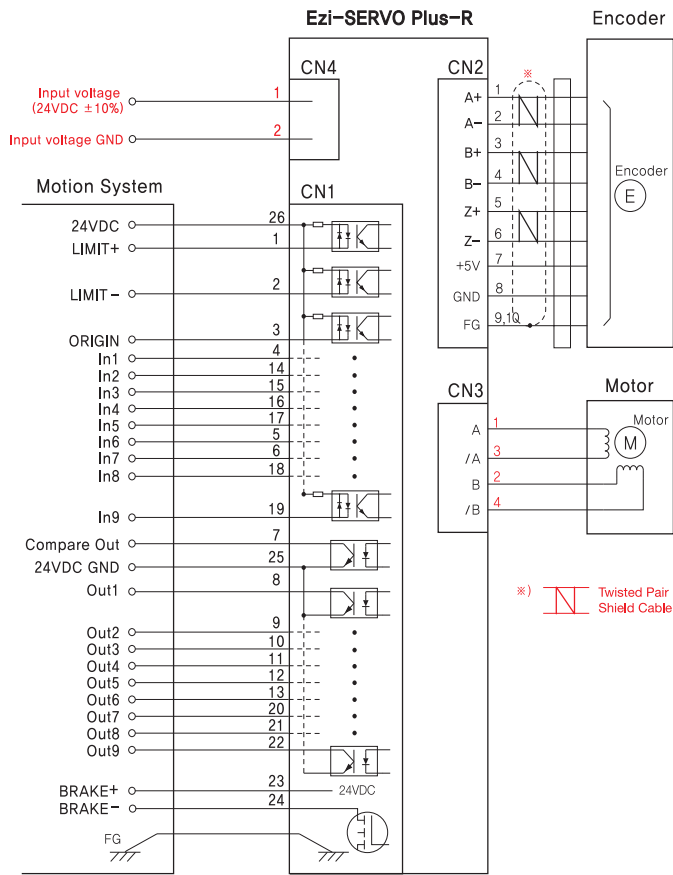
#### Interface Cable

Available to Connect between TB-Plus Interface Board and Ezi-SERVO Plus-R.

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

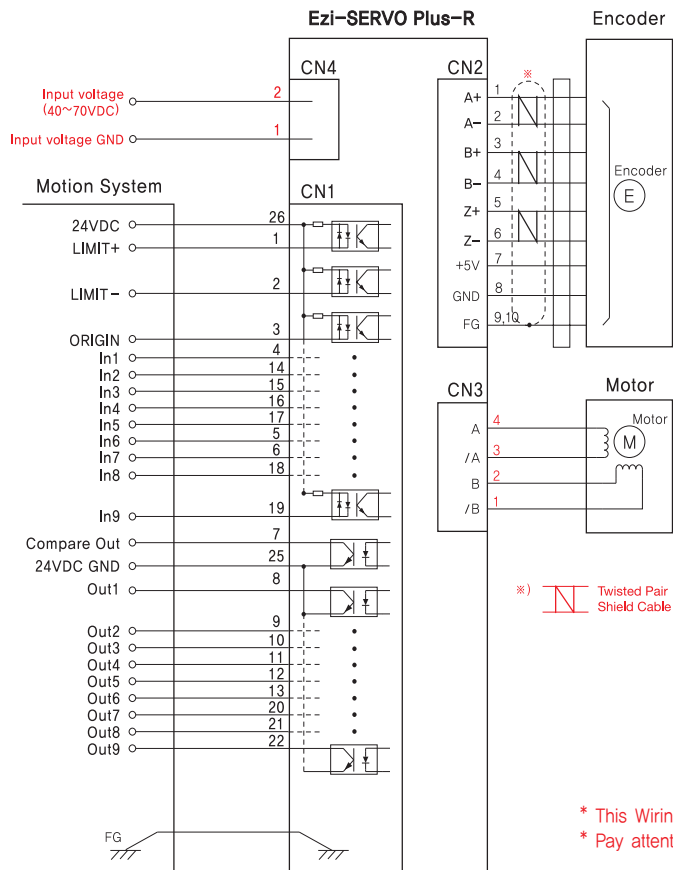
□ is for Cable Length. The unit is 1m and Max, 2m length.

# ● Position Controller Embedded Drive External Configuration



**※ CAUTION ※**  
 Please refer to the Manual when connects motor extension cable. Careful connection will be required to protect any damages.

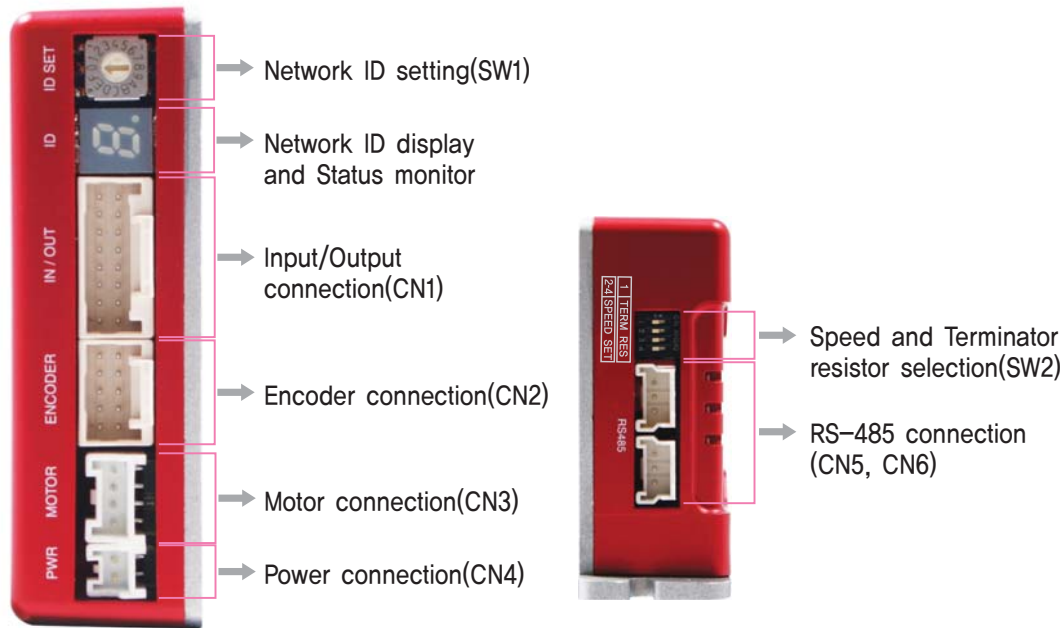
# ● Position Controller Embedded Drive External Configuration (86mm Motor)



**※ CAUTION ※**  
 Please refer to the Manual when connects motor extension cable. Careful connection will be required to protect any damages.

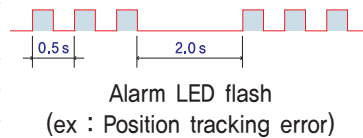
\* This Wiring Diagram is only for 86mm motor drive (EzS-NDR-86 series).  
 \* Pay attention to red color that describe the difference.

# ● Setting and Operation of Mini Plus-R Type Position Controller Embedded Drive



## 1. Protection Function and 7-Segment Flash Times

Times	Protection	Conditions
1	Over current	The current through power devices in inverter exceeds the limit value
2	Over speed	Motor speed exceed 3,000rpm
3	Position tracking error	Position error value is higher than 90° in motor run state*1
4	Over load	The motor is continuously operated more than 5 second under a load exceeding the max. torque
5	Over temperature	Inside temperature of drive exceeds 55°C
6	Over regenerated voltage	Back-EMF more than 50V
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
9	Motor voltage error	Motor voltage is less than 20V
10	In-Position error	After operation is finished, a position error occurs
11	System error	Error occurs in drive system
12	ROM error	Error occurs in parameter storage device(ROM)
14	ROM error	Error occurs in parameter storage device(ROM)
15	Position overflow error	Position error value is higher than 90° in motor stop state*1



\*1 : This value can be changed by parameter (refer to manual)

## 2. Network ID Selection Switch(SW1)

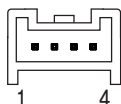
Position	ID number	Position	ID number
0	0	8	8
1	1	9	9
2	2	A	10
3	3	B	11
4	4	C	12
5	5	D	13
6	6	E	14
7	7	F	15



※Maximum 16 axis can be connected in one network.

## 3. Motor Connector(CN3)

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



## 4. Speed and Terminator Resistor Selection Switch(SW2)

The purpose of this is to setting the communication speed and connect a terminator resistor if drive is installed at the end of network.

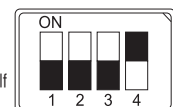
SW 2.1 used for connecting the terminator resistor.  
SW 2.2~SW 2.4 used for setting speed as follows.

SW 2.1	SW 2.2	SW 2.3	SW 2.4	Baud Rate[bps]
–	OFF	OFF	OFF	9,600
–	ON	OFF	OFF	19,200
–	OFF	ON	OFF	38,400
–	ON	ON	OFF	57,600
–	OFF	OFF	ON	115,200*1
–	ON	OFF	ON	230,400
–	OFF	ON	ON	460,800
–	ON	ON	ON	921,600

※For the high speed communication, PCI Bus type RS-485 communication board can be used. (Pease inquire to distributor)

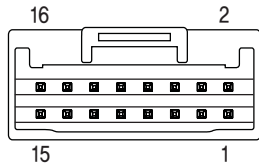
\*1 : Default setting value

If SW2.1 is OFF, terminator resistor is disconnected.If SW2.2 is ON, terminator resistor is connected.



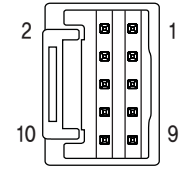
### 5. Input/Output Signal(CN1)

NO.	Function	I/O
1	24VDC	Input
2	24VDC GND	Input
3	BRAKE+	Output
4	BRAKE-	Output
5	+Limit Sensor	Input
6	-Limit Sensor	Input
7	Origin Sensor	Input
8	Digital IN 1	Input
9	Digital IN 2	Input
10	Digital IN 3	Input
11	Digital IN 4	Input
12	Digital IN 5	Input
13	Digital IN 6	Input
14	Digital IN 7	Input
15	Compare Out	Output
16	Digital OUT 1	Output



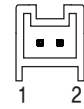
### 6. Encoder Connector(CN2)

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



### 7. Power Connector(CN4)

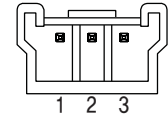
NO.	Function
1	24VDC±10%
2	GND



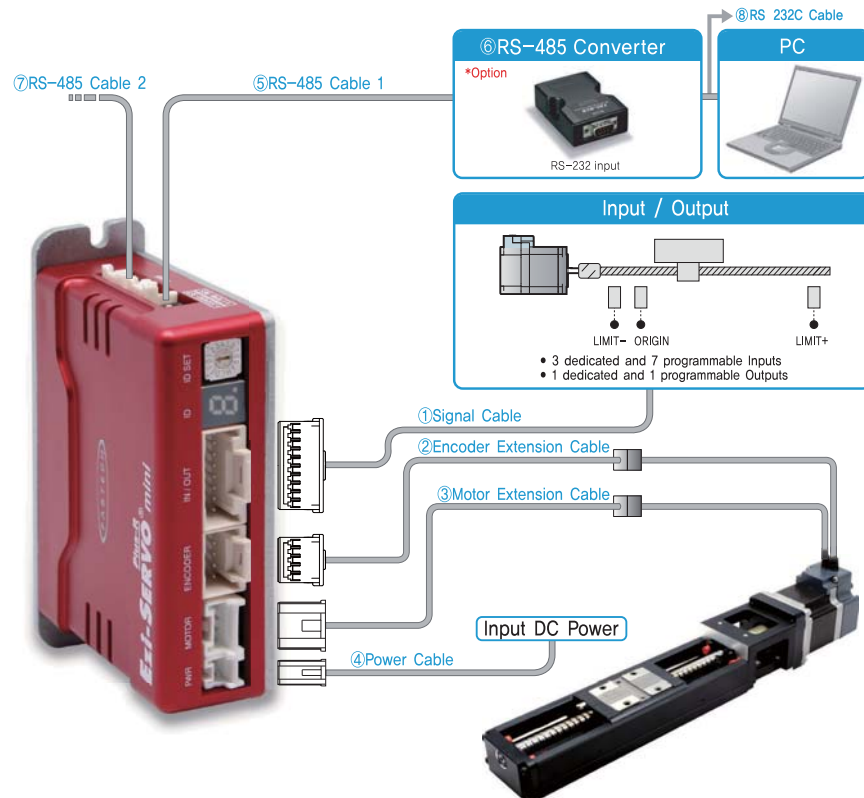
### 8. RS-485 Communication Connector(CN5, CN6)

RS-485 Communication Port to connect with Host Controller.

NO.	Function
1	+DATA
2	-DATA
3	GND



## ● Position Controller Embedded Drive System Configurations



Type	Signal Cable	Encoder Cable	Motor Cable	Power Cable	RS-485 Cable
Standard Length	-	30cm	30cm	-	-
Max. Length	20m	20m	20m	2m	30m



## 1. Cable Option

### ①Signal Cable

Available to connect between Control System and Ezi-SERVO Plus-R MINI.

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

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

### ③Motor Extension Cable

Available to Extended connection between motor and Ezi-SERVO Plus-R MINI.

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

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

### ⑦RS-485 Cable 2

Item	Length[m]	Remark
CGNB-R-0R6F	0,6	Normal Cable
CGNB-R-001F	1	
CGNB-R-1R5F	1,5	
CGNB-R-002F	2	
CGNB-R-003F	3	
CGNB-R-005F	5	

\*Common cable to connect Ezi-SERVO-ALL, Ezi-STEP-ALL, Ezi-MotionLink and Ezi-SERVO-MINI-Plus-R thru by Network.

## 2. Option

### ⑥FAS-RCR(RS-232C to RS-485 Converter)

Item	Specification
Comm. Speed	Max, 115,2Kbps
Comm. Distance	RS-232C : Max, 15m RS-485 : Max, 1,2km
Connector Type	RS-232C : DB9 Female RS-485 : RJ-45
Dimension	50X75X23mm
Weight	38g
Power	Powered from PC (Usable for external DC5~24V)

### ⑧RS-232C Cable

Item	Length[m]	Remark
CGNR-C-002F	2	Normal Cable
CGNR-C-003F	3	
CGNR-C-005F	5	

### ②Encoder Extension Cable

Available to extended connection between Encoder and Ezi-SERVO Plus-R MINI.

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

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

### ④Power Cable

Available to connect between Power and Ezi-SERVO Plus-R MINI.

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

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

### ⑤RS-485 Cable 1

(FAS-RCR to Ezi-SERVO ALL, FAS-RCR to Ezi-STEP ALL, FAS-RCR to Ezi-SERVO Plus R MINI, FAS-RCR to Ezi-MotionLink)

Item	Length[m]	Remark
CGNA-R-0R6F	0,6	Normal Cable
CGNA-R-001F	1	
CGNA-R-1R5F	1,5	
CGNA-R-002F	2	
CGNA-R-003F	3	
CGNA-R-005F	5	

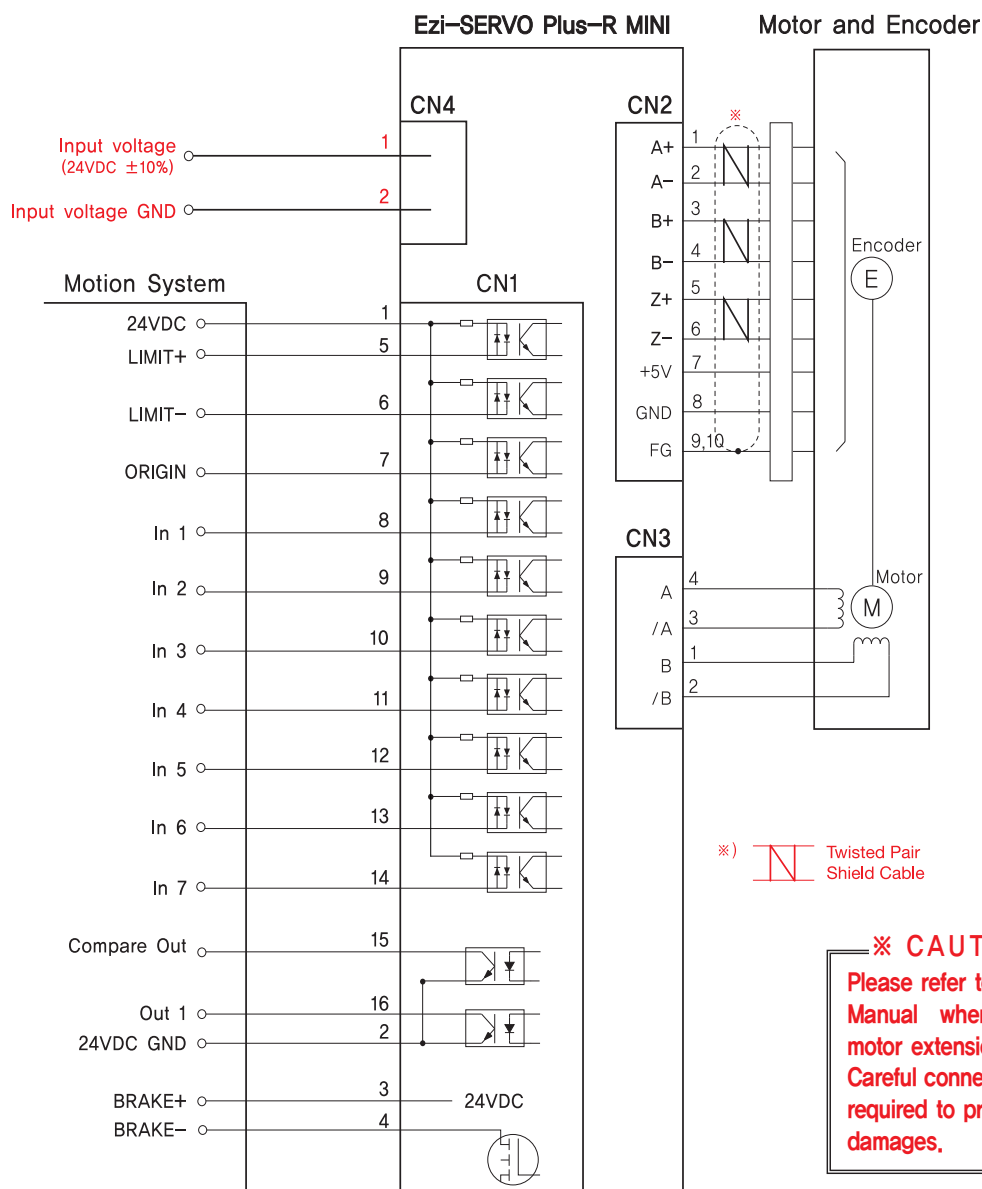
### 3. Connector for Cabling

Purpose	ITEM	Specification	Marker
Signal Connector (CN1)	Housing	501646-1600	MOLEX
	Terminal	501648-1000(AWG 26~28)	MOLEX
Encoder Connector (CN2)	Housing	501646-1000	MOLEX
	Terminal	501648-1000(AWG 26~28)	MOLEX
Motor Connector (CN3)	Housing	PAP-04V-S	JST
	Terminal	SPHD-001T-P0,5	JST
Power Connector (CN4)	Housing	PAP-02V-S	JST
	Terminal	SPHD-001T-P0,5	JST
RS-485 Connector (CN5, CN6)	Housing	35507-0300	MOLEX
	Terminal	50212-8100	MOLEX

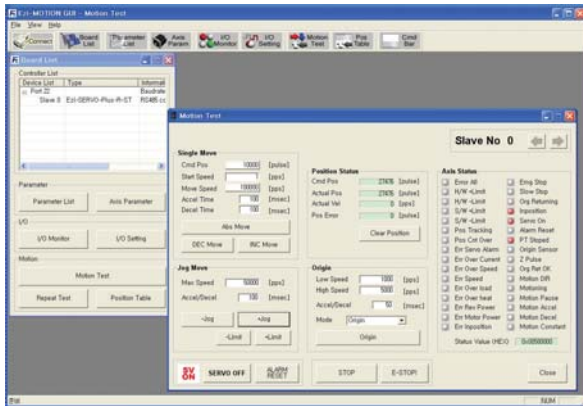
※These connectors are serviced together with Ezi-SERVO Plus-R MINI except when purchasing option cables.

※Above connector is the most suitable product for Ezi-SERVO Plus-R MINI. Another equivalent connector can be used.

### ● Mini Plus-R Type Pulse Input Drive External Configuration



# GUI(Graphic User Interface) Screenshot



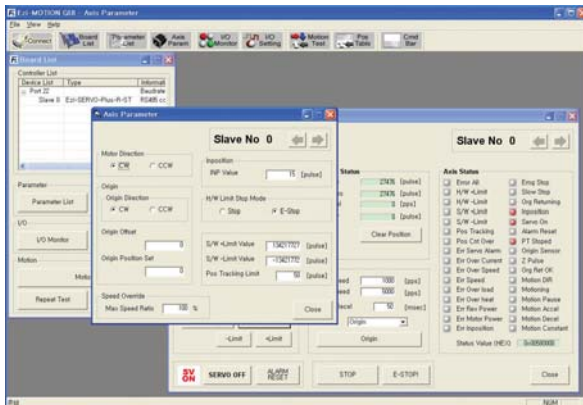
## ◆ Controller Lists and Motion Test

This screen display the controller list that connected to system. You can make a single move, jog and origin command and also the motor status is displayed.



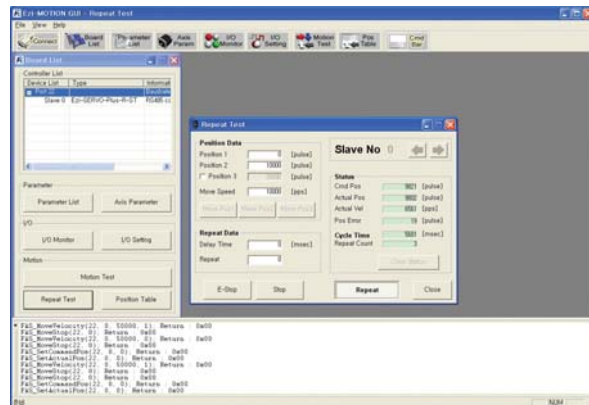
## ◆ Parameter List

All of the parameters are displayed and modified on this screen.



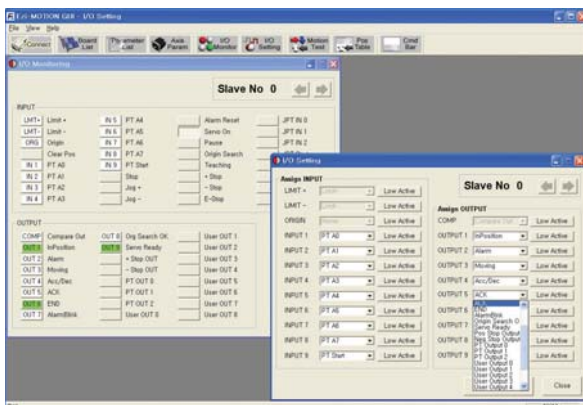
## ◆ Axis Parameter Setup

You can select various parameters that frequently used. (ex : sensor input logic)



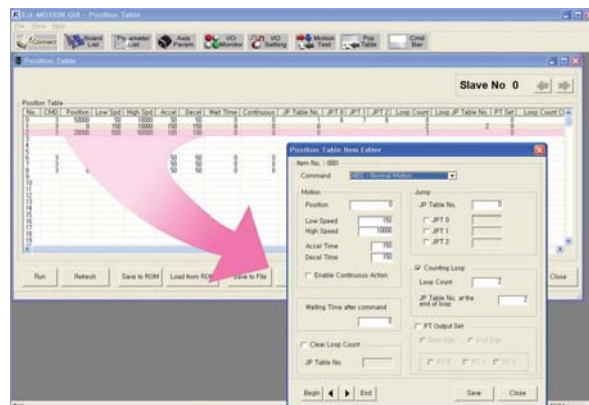
## ◆ Motion Repeat and Monitor Status

Target position, speed, delay time and repeat count are selected for repeat motion test. Motion library(DLL) is also displayed on screen.



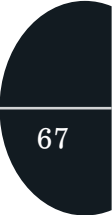
## ◆ I/O Monitoring and Setting

You can select various digital input and output signals of controller.



## ◆ Position Table

You can edit the position table and execute it. The position table data can be saved and loaded from Flash ROM and Windows file.





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