



**Ezi-SERVO II EtherCAT** is stepping motor control system using EtherCAT, high speed ethernet (100Mbps Full-Duplex) based fieldbus. Ezi-servo II EtherCAT is EtherCAT slave module which support CAN application layer over EtherCAT (CoE). CiA 402 Drive Profile implemented. Supported modes are Profile Position Mode, Homing MOde, Cyclic Synchronous Position Mode.

**Their main characteristics are :**

- CiA 402 Drive Profile Support
- Closed Loop System
- No Gain Tuning / No Hunting
- Heat Reduction / Torque Improvement
- High Resolution / Fast Response



## Technical Data

Motor Model	Driver Model	Number of phases	Voltage	Current	Resistance	Inductance	Holding Torque	Rotor Inertia	Weights	Length (L)	Permissible Overhung Load (Distance from end of shaft)				
											3mm	8mm	13mm	18mm	
Units		-	VDC	A	Ohm	mH	Nm	g.cm <sup>2</sup>	g	mm	N				
EzM2-20	20M	EzS2-EC-20	2	2,75	0,5	5,5	2,0	0,016	2,5	80	28	18	30	-	-
	20L		2	3,0	0,5	6,0	2,6	0,025	3,3	104	38	18	30	-	-
EzM2-28	28S	EzS2-EC-28	2	3,0	0,95	3,2	2,0	0,069	9,0	147	32	30	38	53	-
	28M		2	3,0	0,95	3,2	2,7	0,098	13	204	45	30	38	53	-
	28L		2	3,0	0,95	3,2	3,2	0,118	18	232	50	30	38	53	-
EzM2-35	35M	EzS2-EC-35	2	1,8	1,5	1,2	1,2	0,13	15	194	32	22	26	33	46
	35L		2	2,7	1,5	1,8	2,6	0,23	20	226	36	22	26	33	46
EzM2-42	42S	EzS2-EC-42	2	3,36	1,2	2,8	5,4	0,32	35	294	34	22	26	33	46
	42M		2	4,32	1,2	3,6	7,2	0,44	54	357	40	22	26	33	46
	42L		2	4,56	1,2	3,8	8,0	0,5	77	426	48	22	26	33	46
	42XL		2	7,2	1,2	6,0	15,6	0,65	114	564	60	22	26	33	46
EzM2-56	56S	EzS2-EC-56	2	1,56	3,0	0,52	1,2	0,64	180	608	46	52	65	85	123
	56M		2	1,62	3,0	0,54	2,0	1,0	280	784	55	52	65	85	123
	56L		2	2,64	3,0	0,88	4,0	1,5	520	1230	80	52	65	85	123
EzM2-60	60S	EzS2-EC-60	2	1,32	4,0	0,33	0,75	0,88	240	693	47	70	87	114	165
	60M		2	1,48	4,0	0,37	1,1	1,28	490	856	56	70	87	114	165
	60L		2	2,2	4,0	0,55	2,7	2,4	690	1419	85	70	87	114	165
EzM2-86	86M	EzS2-EC-86	2	2,34	6,0	0,39	3,0	4,5	1800	2355	78	270	300	350	400
	86L		2	3,6	6,0	0,6	6,5	8,5	3600	3941	117	270	300	350	400
	86XL		2	4,8	6,0	0,8	8,68	12	5400	5453	155	270	300	350	400

# SPECIFICATIONS

## SPECIFICATIONS OF MOTOR

Drive Method	BI-POLAR	
Permissible Thrust Load (N)	Lower than motor weight	
Insulation Resistance (Mohm)	100 MIN.(at 500 VDC)	
Insulation Class	CLASS B(130°C)	
Operating Temperature (°C)	0 to 55	

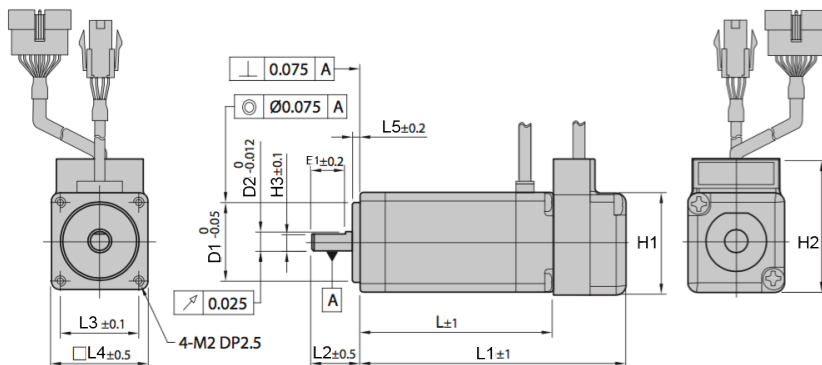
## SPECIFICATIONS OF DRIVE

Input Voltage	24 VDC ±10%	40-70 VDC for EzS2-EC-86 series
Control Method	Closed loop control with 32bit MCU	
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% RH (Non-Condensing) / In storage : 10 -90% RH (Non-Condensing)
	Vib.Resist	0,5g
Function	Rotation Speed	0 - 3,000 [rpm] *1
	Resolution (ppr)	Encoder F : 4,000(ppr) : 500 1,000 1,600 2,000 3,600 4,000 5,000 6,400 7,200 10,000 Encoder A : 10,000(ppr) : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 Encoder D : 16,000(ppr) : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 16,000 Encoder B : 20,000(ppr) : 500 1,000 1,600 2,000 3,600 5,000 6,400 7,200 10,000 20,000 (Selectable by parameter) *2
	Protection Functions	Over Current Error, Over Speed Error, Position Tracking Error, Over Load Error, Over Temperature Error, Over Regenerated Voltage Error, Motor Connect Error, Encoder Connect Error, In-Position Error, ROM Error, Position Overflow Error
	LED Display	Power status, In-Position status, Servo On status, Alarm status
EtherCAT	Supported Protocol	CoE (CiA 402 Drive Profile), FoE (Firmware Download)
	Supported Mode	Profile Position Mode, Homing Mode, Cyclic Synchronous Position Mode
	Synchronization	Free Run, SM Event, DC SYNC Event
I/O Signal	Input Signals	3 dedicated inputs (LIMIT+, LIMIT-, ORIGIN), 7 user inputs (Photocoupler Input)
	Output Signals	6 user outputs (Photocoupler Output), Brake

\*1 : Up to the resolution of 10,000[ppr], maximum speed can be reached by 3,000[rpm] and with the resolution more than 10,000[ppr], maximum speed shall be reduced accordingly.

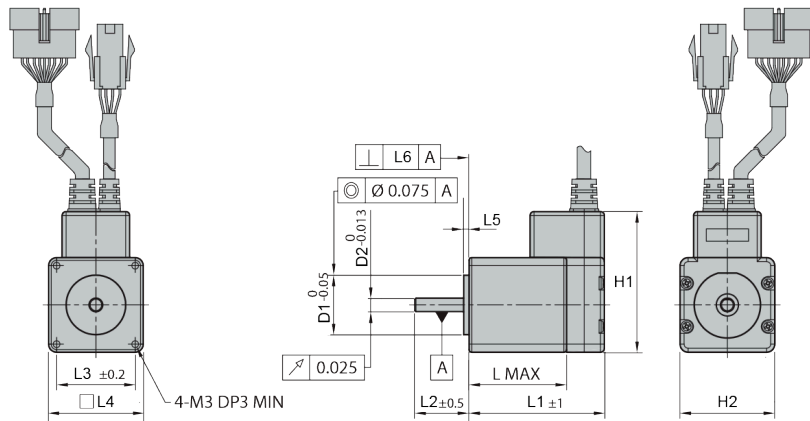
\*2 : When selected resolution is more than encoder resolution, motor shall be operated by microstep between pulses.

## DRAWING



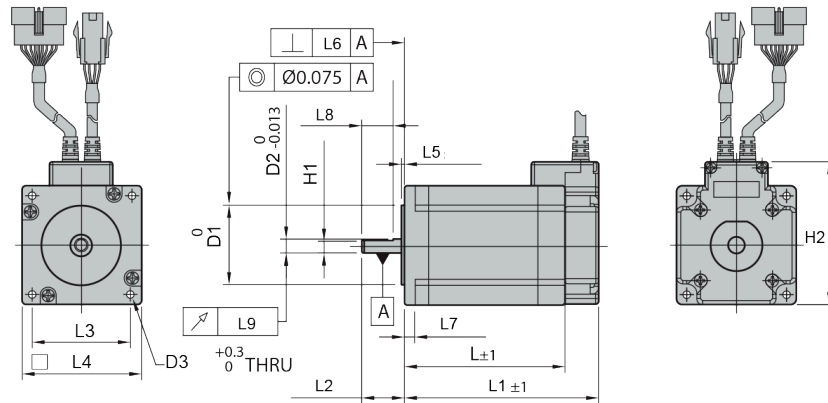
Dimensions	L	L1	L2	L3	L4	L5	H1	H2	D1	D2	E1
EzM2-20M	28	L+15	10	4-16	20	1,5	20,6	27,6	Ø16	Ø4	7
EzM2-20L	38										
EzM2-28S	32	L+13,6	15	4-23	28	2	-	31	Ø22	Ø5	10
EzM2-28M	45										
EzM2-28L	50										

# DRAWING



Dimensions	L	L1	L2	L3	L4	L5	L6	H1	H2	D1	D2
EzM2-28SM	32										
EzM2-28MM	45	L+13,6	15	4-23	28	2	0,075	47,2	28,3	Ø22	Ø5
EzM2-28LM	50										
EzM2-35MM	32										
EzM2-35LM	36	L+14	20	4-29	35	2	0,1	52	35	Ø22	Ø5
EzM2-42S	34										
EzM2-42M	40										
EzM2-42L	48	L+16	24	4-31	42	1,8	0,1	-	59	Ø22	Ø5
EzM2-42XL	60										

When ordering 28mm or 35mm Stopper type of motor, please add "M" after standard motor model number.



Dimensions	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	H1	H2	D1	D2
EzM2-35M	32													
EzM2-35L	36	L+14	20±0,5	4-29	35	2	0,1	-	-	0,025	-	35	Ø22-0,05	Ø5-0,05
EzM2-56S	46													
EzM2-56M	55	L+16	20±0,5	4-47,14	57,15±0,25	1,6±0,25	0,1	5±0,25	15±0,2	0,025	5,8±0,1	68,5	Ø38,1-0,013	Ø6,35
EzM2-56L	80													
EzM2-60S	47													
EzM2-60M	56	L+16	20,6±0,5	4-50±0,25	60±0,5	1,6±2	0,1	6,3±0,25	15±0,2	0,025	2,7±0,1	70	Ø36-0,039	Ø8
EzM2-60L	85													
EzM2-86M	78													
EzM2-86L	117	L+16,5	37±1	4-69,5±0,2	86±0,5	1,6±2	0,076	10±0,5	2-25±0,3	0,05	2-13-0,1	96	Ø373-0,05	Ø14
EzM2-86XL	155													

## PART NUMBER COMPOSITION

### Ezi-SERVO II EC-56L-A-BK-PN05-X



- ① Drive Series Type  
EC : EtherCAT
- ② Motor Flange Size  
20 : 20mm  
28 : 28mm  
35 : 35mm  
42 : 42mm  
56 : 56mm  
60 : 60mm  
86 : 86mm
- ③ Motor Length  
S : Small  
M : Medium  
L : Large  
XL : Extra Large
- ④ Encoder Resolution  
A : 10,000(ppr)  
B : 20,000(ppr)  
D : 16,000(ppr)  
F : 4,000(ppr)
- ⑤ Brake  
Blank : Without Brake  
BK : Brake
- ⑥ Reduction Gear Ratio  
Blank - Without Gear  
PN03 - 1:3  
PN05 - 1:5  
PN08 - 1:8  
PN10 - 1:10  
PN15 - 1:15  
PN25 - 1:25  
PN40 - 1:40  
PN50 - 1:50
- ⑦ User Code

In accordance with our policy of continual product improvement, A2V reserves the right to amend the specification of these products without prior notification