LITEON

2016 Catalog

LITEON INDUSTRIAL AUTOMATION
YOU CAN TRUST

Lite-On's commitment to IA Industry

- Guarantee 100% burn-in testing
- Guarantee best-quality key components from top European and Japanese suppliers
- Guarantee continuous investment in automation industry (e.g. servo, PLC, motion etc)
- Guarantee in-house manufacturing
- Guarantee 100% field testing in our factories
- Flexible terms and condition with channel partner
- Guarantee CE, UL, cUL

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6. Global Certifications

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LITEON Group

Founded in 1975 with a single LED product line acquired from Texas Instrument, Lite-On soon became the first public-traded technology company on Taiwan Stock Exchange (TWE:2301). With a combined portfolio exceeding 8 billion USD revenue, Lite-On is the ODM partner with market leaders such as Philips, SONY, Lenovo, HP, DELL, GE and BMW etc.

We have become top leaders along with Emerson and Delta. Focusing strongly on building R&D power, we have over 2,000 R&D engineers with over 2,500 patents. Lite-On has been known for diverse portfolio in power adapters, server power supply, automotive electronics, electric vehicle supply equipment, photo couplers, NB wireless modules, camera modules, DT casing and etc.

MASTER
IN 4C INDUSTRY

Computer

Magnesium aluminum alloy casing period punctuation The largest transformer manufacturer in Taiwan and one of the major providers of power supplies used in notebook computers, desktops and LCD TVs. Global market share of notebook adapters is over 60% period punctuation.

Communication

World's 2nd largest mobile phone casing supplier. Leader in high-end camera modules.

Communication

Semiconductor components applied on communications, information, consumer electronics products' switching power supply & system power supply, photo couplers, LED, switching hubs and WLAN.

Car

As the first automotive electronics manufacturer to acquire global certification TS16949,Lite-On Automotive concentrates on engine control system, rear parking assistance system, Body Control System, LED automotive lamp module and Cruise Control System in the automotive industry. Lite-On Automotive is the only company in the world which is capable of providing the integrated design service in LED automotive lamp module. Lite-On is also the world's top three supplier for assemblies of diode rectifiers for car generators.

PRINCIPAL PRODUCTS
In Global Leading Positions

Global Top 1
- PC Adapter(NB+DT)
- Keyboard
- Handset keypad
- Photo coupler
- Optical disk drive
- NB Wireless Module
- CIS
- Printer
- Bluetooth module
- Camera module

Global Top 3
- Desktop PC casing
- Server power Supply
- LED
- Solid State Drive

In Industrial Automation
We Leverage the Advantages We Own

World-Class Quality
- 50 factories in America, Europe, Asia
- Low DPPM capable manufacturing to service
- High quality requirement industry

Global Network
- 30 branch offices and 250 hubs
- 40 years of experience in ODM/OEM

Taipei LITEON Building

03 /

Global Network

With 50 factories, 30 branches, and over 250 hubs, we are capable of serving our customers globally in a timely manner.

With 40 years of success in technology and outstanding quality for highest customer satisfaction period. Lite-On is taking AC drives as a first step in industrial automation. We are aiming to provide servo systems, motion control and HMI to become a total solution provider in industrial automation over the next 10 years.

50	Factories
250	Hubs
30	Branches
70000	Employees
8 Billion	USD Revenue

01 /

Market Positioning & Application

In 2015, we will continue to broaden our power range to 475kW and focus on industry-specific applications.

			Power Rating
VFD **EVO 8000** Premium Current Vector AC Drive	Lathes Hoists Extruders Extractors Presses	Drawing Machines Printing Machines Wire Drawing Machines Injecting Machines Dyeing & Finishing Machines	0.75kW~30kW 1HP~40HP
VFD **EVO 6800** Compact Vector Drive	Feeders Presses Pump Plastic Machines Fans & Pumps	Belts Conveyors Compressor Disccoalfeeder pulverized coal feeder Ceramic machines	0.4kW~110kW 0.5HP~150HP
VFD **EVO 6000** Ultra Compact Vector AC Drive	Feeders Conveyors Robot Arms Labeling Machines Fans & Pumps	Knitting Machines Food Processing Machines Winding Machines Packaging Machines Industrial Sewing Machines	0.2kW~3.7kW 0.25HP~5HP
SERVO **ISA-7** MicroType High Performance Servo Drives	Cutting Machine Sawing Machines	Industrial Machinery Conveyor Machines Electric Discharge Machines	400W~3kW

Lite-On Group Operations across America, Europe and Asia.

02 /

Launch Schedule

400V
18.5~30kW

400V
5.5~11kW

400V
15~18.5kW

400V
22~90kW

400V
0.4~3.7kW

200V1Φ
0.2~2.2kW

200V3Φ
0.2~3.7kW

400V

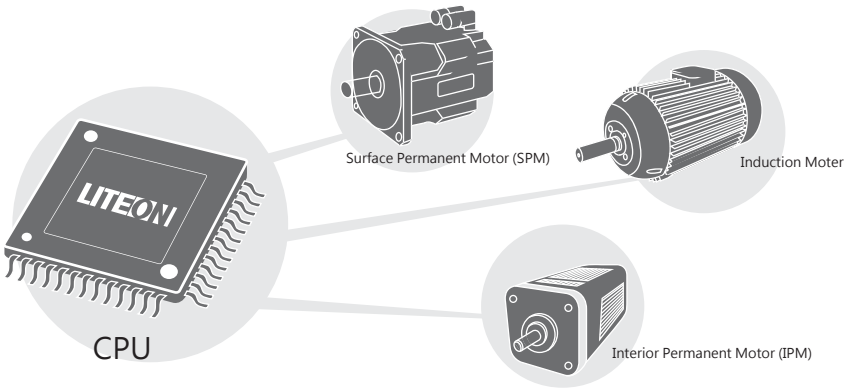
2015 Q1 | 2015 Q2 | 2015 Q3 | 2015 Q4 | 2016 Q1

03 / 04

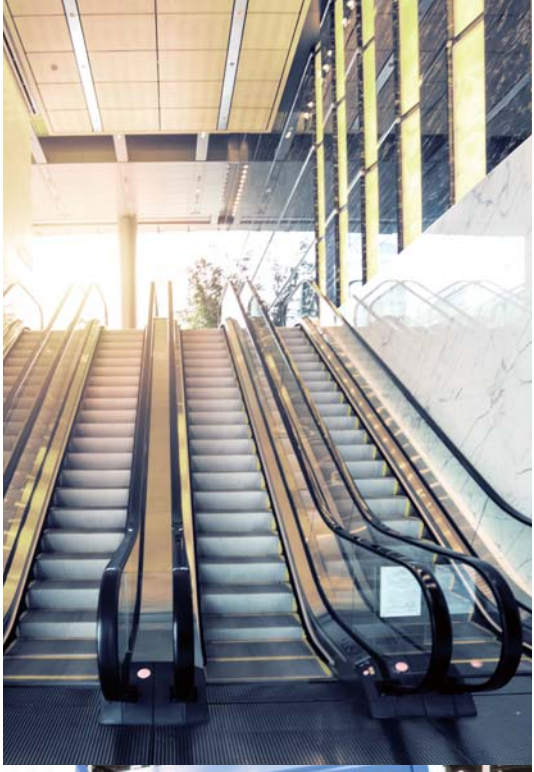
03/ EVO 8000 Series

Sensor & Sensorless Vector Control

01 / Drive Various Types of Motors (IM, SPM, IPM)



- Capable of driving IM/SPM/IPM with one simple parameter setting.
- High performance Current Vector Control across motor types.

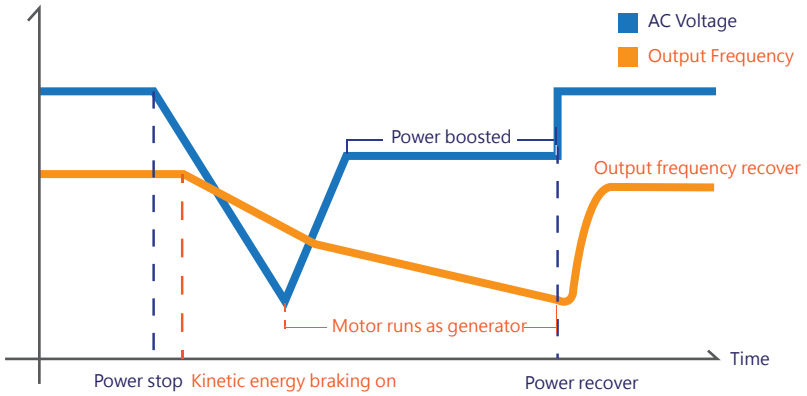


02 / Powerful Functionality

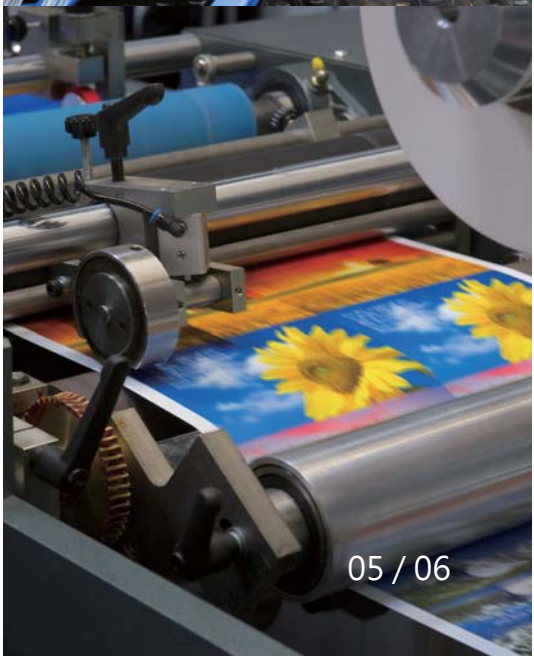
Unique variable fan speed and alarm information provided.

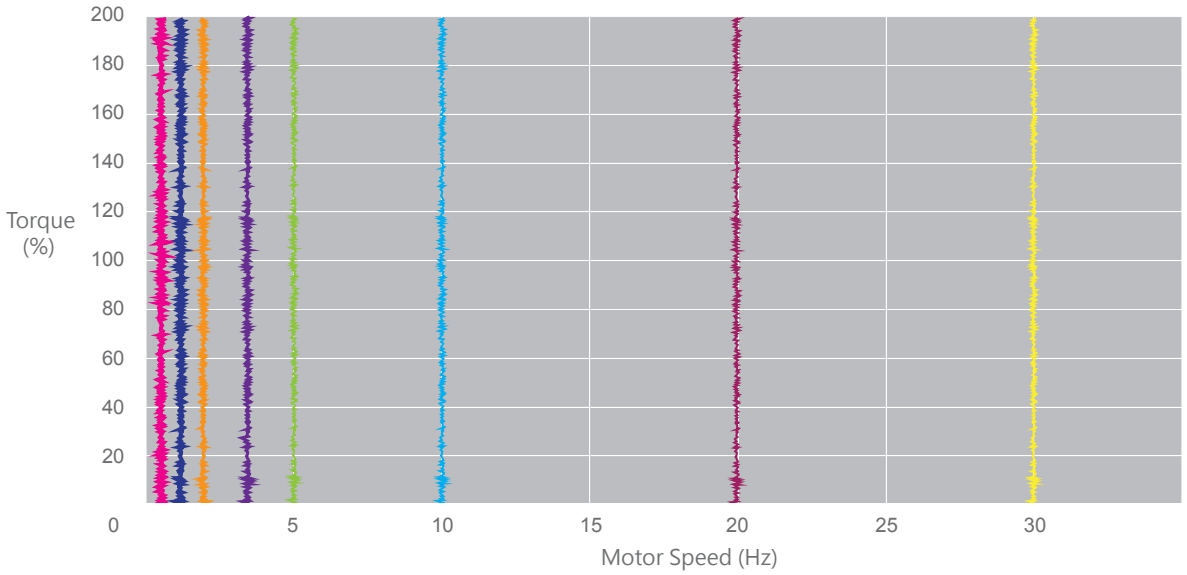
- Braking transistor built-in up to 30kW.
- Multi-function pulse train control.
- DC bus terminal (optional) for easy connection with AC reactors.
- Unique variable fan speed and alarm information provided. (3.7kW and above)

03 / Kinetic Energy Braking

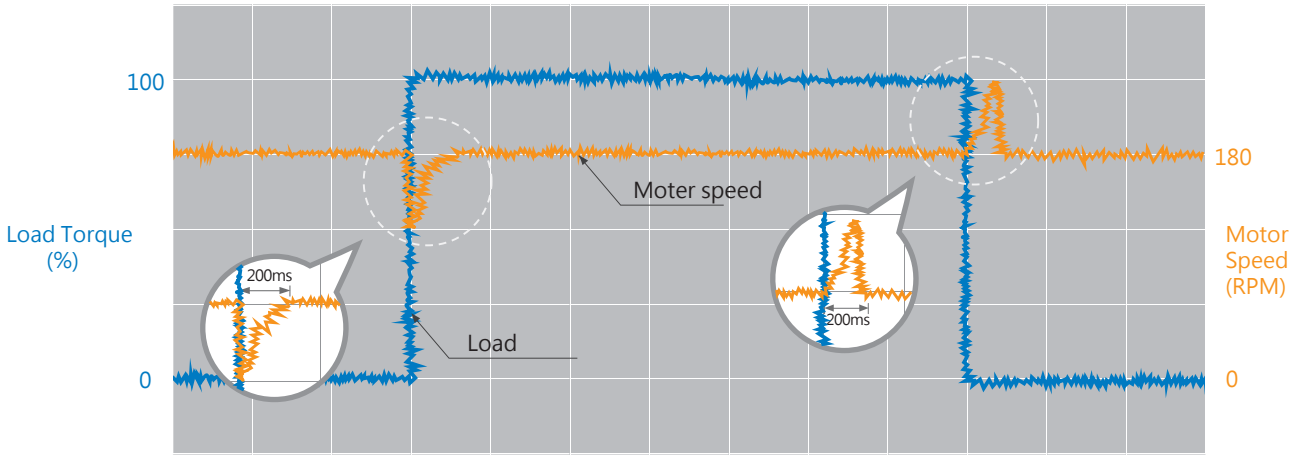


- When the power shuts down, the regeneration from motor braking is utilized to keep the AC drive powered until power supply recovers.

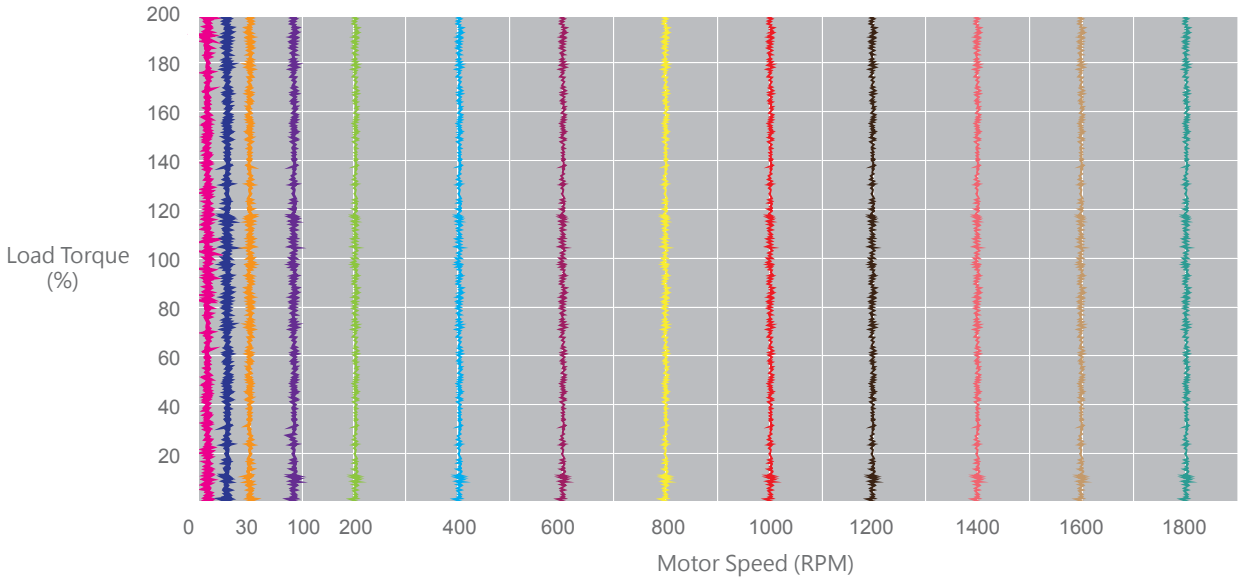




- Outstanding performance of 200%.
- Closed-loop Current Vector Control (optional PG card).



- Sensorless Current Vector Control immediately reacts to sudden load changes.
- Wide speed control range 1:200.



- Fast response and accurate speed control 1: 1500 with PG card.

05 / Strong Communication Expansion

- RS-485 and USB ports both built-in.
- USB port allows connection with Lite-On Studio PC software making data control easiest ever !
- RS-485 port allows communication with multiple AC drives.
- Supports major industrial communication including optional CANopen and more coming soon.

06 / Easy To Maintain

- Remote keypad

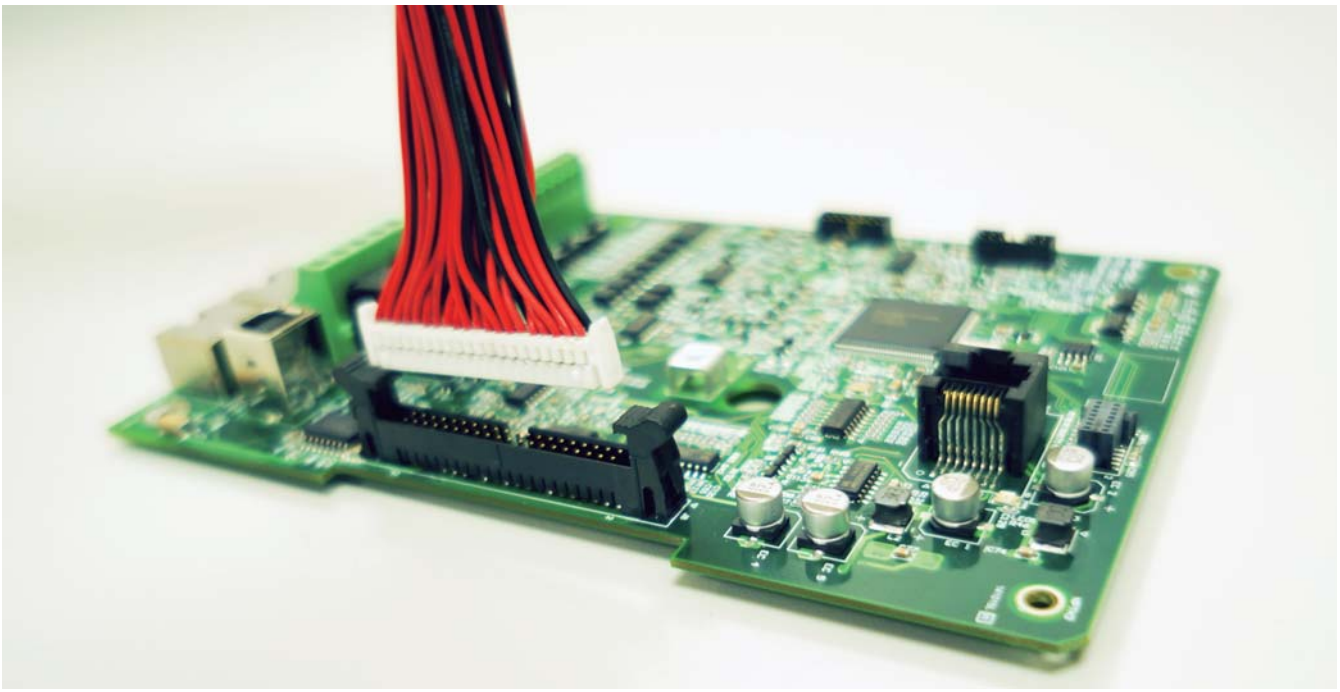
- LCD keypad (option)

- Quick release fan / Alarm information / Variable fan speed

07 / Global Certifications

- All models comply with EU RoHS standards.
- Conformity to CE/UL/CUL.

08 / Optimized Enviromental Immunity



- Soft cables improve reliability of signal transmission.
- 100% PCB coating effectively isolates dust and extends PCB operation life.
- Optional NEMA 1 kit ensures better protection to further extend product life span.
- 18 month warranty.

09 / Dual Rating For More Economical Selection

Heavy Duty 3.7kW AC Motor
Application: Cranes, presses, etc.

Normal Duty 5.5kW AC Motor
Application: Fans, pumps, etc.

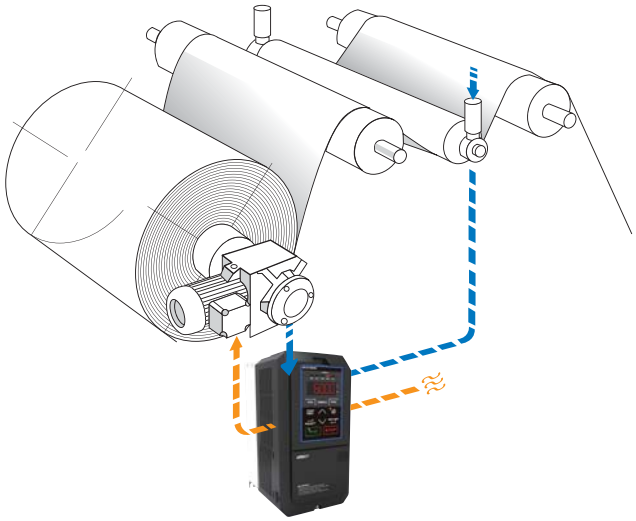
- Easy to switch between HD/ND mode by parameter setting.
- In light applications, ND mode is applicable to drive higher rated motors and provide a cost-effective solution.

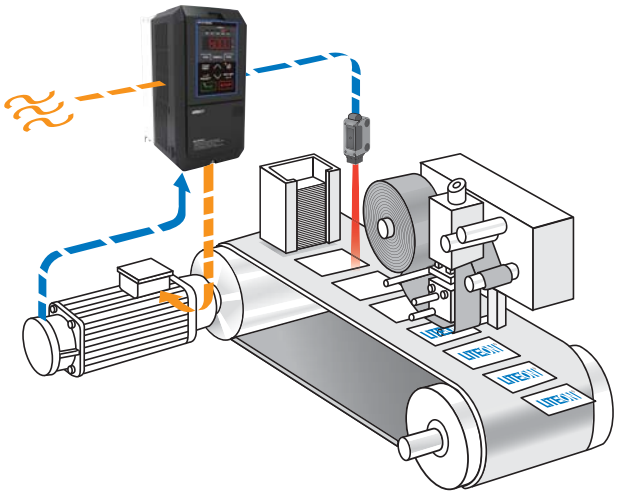
Motor Rating kW	3 Phase 380V	
	Normal Duty Model Name	Heavy Duty Model Name
0.75		EVO800043SD75
1.5	EVO800043SD75	EVO800043S1D5
2.2	EVO800043S1D5	EVO800043S2D2
3.7	EVO800043S2D2	EVO800043S3D7
5.5	EVO800043S3D7	EVO800043S5D5
7.5	EVO800043S5D5	EVO800043S7D5
11	EVO800043S7D5	EVO800043S011
15	EVO800043S011	EVO800043S015

Motor Rating kW	3 Phase 380V	
	Normal Duty Model Name	Heavy Duty Model Name
18.5	EVO800043S015	EVO800043S018
22	EVO800043S018	EVO800043S022
30	EVO800043S022	EVO800043S030
37	EVO800043S030	EVO800043S037
45	EVO800043S037	EVO800043S045
55	EVO800043S045	EVO800043S055
75	EVO800043S055	EVO800043S075
90	EVO800043S075	

We make tension control easy for you

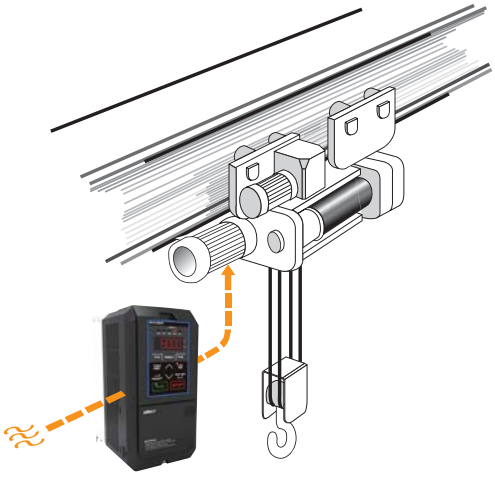
In tension control, you normally need to pay attention to materials which may break or wrinkle by unstable roll tension. EVO 8000 provides superior Current Vector Control for wide range of machine speed or reel diameter. It remains just the right tension and monitors dynamic process.





Lite-On EVO8000 series drives permanent motors

EVO 8000 brings the best feature out of permanent motors. Our high speed CPU facilitates permanent motors' performance in dynamic applications.



Distinguished control solves vibration problem at low speed

In crane application, the lift and stability is usually a challenge. EVO 8000 achieves outstanding control at low speed and Zero Holding function. Controlling at low speed suppresses vibration and allows smooth acceleration and deceleration. This ensures smooth operation at low speed before mechanical braking in order to greatly extend life span of the machine. Zero Speed Holding function makes sure the motor keeps the cargo steady even when the speed is zero, to prevent it from fall down right after mechanical brake releases. Such function is a must to avoid any possible damage to cargo and lives.

Control Method	V/F	Sensorless Current Vector Control	Current Vector Control
Application Requirement	<<<< Simple		High Accuracy >>>>
Application	Printing Machinery Fans / Pumps Machine-tools, Extruders / Cutters Winders Cranes Lifting Machinery		
Speed Control	O	Zero Speed Holding	O (Zero Speed Holding)
Torque Control	×	Zero Speed Holding	O (Zero Speed Holding)
Position Control	×	×	O
Motion Control	1:10 (6 to 60Hz)	1:200 (0.3 to 60Hz)	1:1500
Applicable Motor Type	AC Motors	AC Motors	AC Motors

* Zero Speed Holding function under development

11 / Ratings

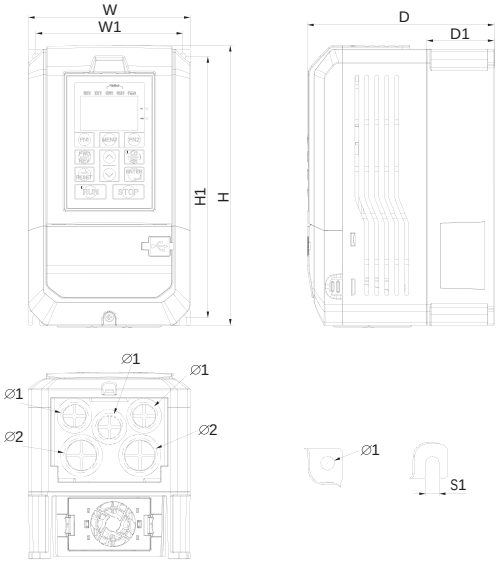
400V												
Model Number	EVO800043S		D75	1D5	2D2	3D7	5D5	7D5	011	015	018	022	030
Max. Motor Capacitor	HP	HD	1	2	3	5	7.5	10	15	20	25	30	40
		ND	2	3	5(4)	7.5	10	15	20	25	30	40	50
	kW	HD	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
		ND	1.5	2.2	3.7(3)	5.5	7.5	11	15	18.5	22	30	37
Input Voltage (V) / Frequency (Hz)			3 Phase , 380 to 480 V , -15% to +10% , 50/60Hz										
Rating Output	Current (HD)		3.4	4.2	5.5	9	12	18	24	31	39	45	60
	Max. Output Frequency (Hz)		0 to 400 Hz										
	Carrier Frequency (kHz)		1 to 16kHz										
Cooling Method			Fan										
Frame			1			2			3			4	

12 / Dimensions

Unit : mm / inch

FRAME	W	W1	H	H1	D	D1	S1	Ø	Ø1	Ø2	Ø3
1	130 ‹ 5.12 ›	118 ‹ 4.65 ›	225 ‹ 8.85 ›	210 ‹ 8.26 ›	150 ‹ 5.90 ›	54 ‹ 2.12 ›	5.5 ‹ 0.22 ›	5.5 ‹ 0.21 ›	22 ‹ 0.86 ›	28 ‹ 1.1 ›	
2	130 ‹ 5.12 ›	118 ‹ 4.65 ›	250 ‹ 9.84 ›	235 ‹ 9.25 ›	175 ‹ 6.88 ›	64 ‹ 2.51 ›	5.2 ‹ 0.20 ›	5.5 ‹ 0.21 ›	22 ‹ 0.86 ›	28 ‹ 1.1 ›	
3	180 ‹ 7.09 ›	162 ‹ 6.38 ›	310 ‹ 12.2 ›	290.6 ‹ 11.44 ›	195 ‹ 7.68 ›	89 ‹ 3.5 ›	8.4 ‹ 0.33 ›	8.4 ‹ 0.33 ›	22 ‹ 0.87 ›	28 ‹ 1.1 ›	44 ‹ 1.73 ›
4	240 ‹ 9.45 ›	222 ‹ 8.74 ›	420 ‹ 16.53 ›	395.5 ‹ 15.57 ›	235 ‹ 9.25 ›	113.7 ‹ 4.47 ›	8.4 ‹ 0.33 ›	8.4 ‹ 0.33 ›	22 ‹ 0.86 ›	28 ‹ 1.1 ›	44 ‹ 1.73 ›

· Frame 1



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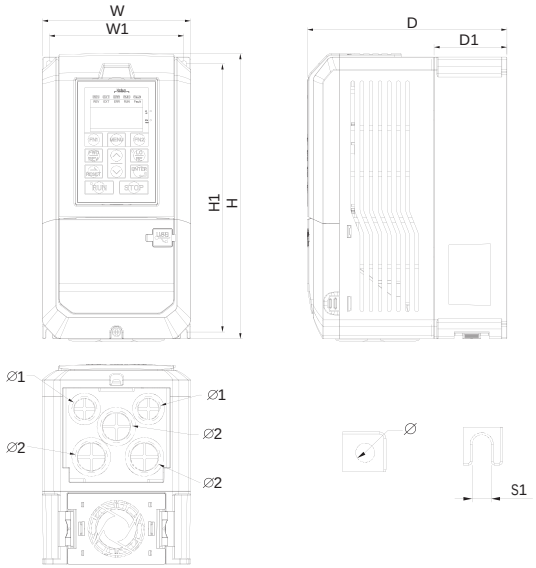

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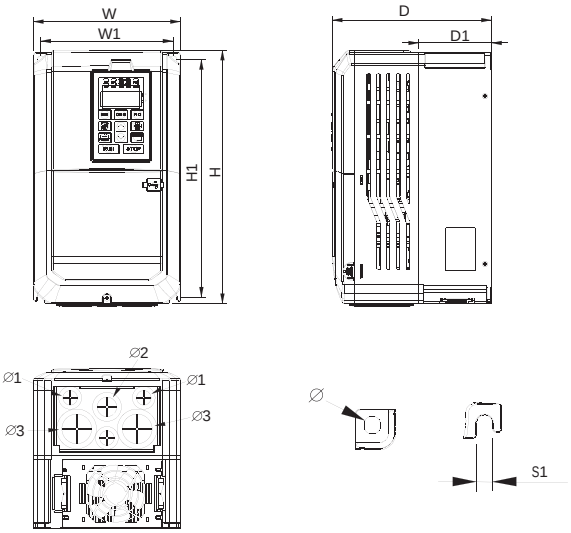

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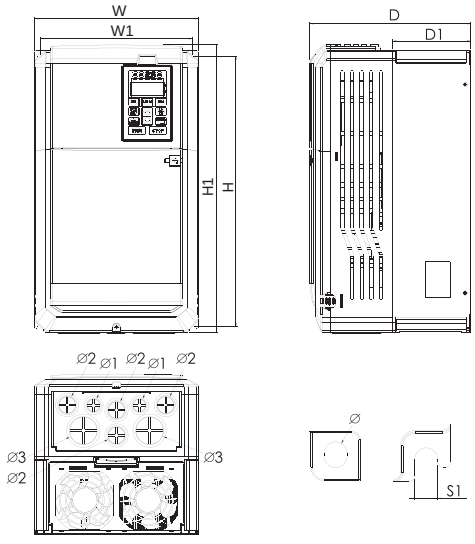


13 / General Specification

Item		Specification
Control Characteristic	Control Method	V/F Control, Closed-Loop V/F Control, IM / PM Closed-Loop Current Vector Control, IM / PM Open-Loop Current Vector Control
	Ouput Frequency	0 to 400 Hz
	Frequency Accuracy	Digital Input: within ±0.01% of the Max. output freqeuncy
		Analog Input: within ±0.1% of max. output frequency (-10℃ to +50℃)
	Frequency Setting Resolution	Digital Input : 0.01Hz
		Analog Output : 1/1000 of max. frequency
	Starting Torque	150% / 3Hz (V/F and Closed-Loop V/F) 200% / 0.3Hz (Sensorless Current Vector Control) 200% / 0 r/min (IM/PM Closed-Loop Current Vector Control) 100% / 5% (PM Open-Loop Current Vector Control)
	Speed Control Range*	1: 40 (V/F and V/F with PG) 1:200 (IM Sensorless Current Vector Control) 1:20 (PM Sensorless Current Vector Control) 1:1500 (IM/PM Current Vector Control with PG)
	Speed Control Accuracy*	±0.2% (Open-Loop Vector Control) ±0.02% (Closed-Loop Vector Control)
	Speed Response	10 Hz in Sensorless Current Vector Control
		50 Hz in Current Vector Control
	Acc/Dec Time	0.0 ~ 6000.0 sec
	Braking Torque	approx. 20%
	V/F Pattern	15 fixed and 1 programmable
	Overload Capacity	120% for 1 min. within every 10 min. (Normal Duty) 150% for 1 min. within every 10 min. (Heavy Duty)
	Parameter Function	Torque Control, Speed/Torque Control Switching, Feed Forward Control, Zero Speed Holding, Momentary Power Restart, Speed Search, Overtorque/Undertorque Detection, Torque Limit, Multi-Step Speed, Acc./Dec. Switch, S-Curve Acc./Dec., 3-Wire Sequence Control, Auto-Tuning, Cooling Fan ON/OFF Switch, Slip Compensation, Torque Compensation, Frequency Jump, Upper/Lower Limits for Frequency Command, DC Braking at Run/Stop, PID Control including Pause Function, Energy Saving Mode, Fault Reset, Kinetic Energy Braking, Auto Voltage Adjustment, Overvoltage Suppression, Traverse, etc.
Operating Environment	Area of Use	Indoor without corrosive gas/liquid or flammable gas/liquid/oil mist/dust
	Ambient Temperature	-10º C to +50º C, -10º C to +40º C (NEMA1) , below 90% RH without froze or condensation
	Storage Temperature	-20º C to +60º C
	Altitude	Up to 1000 meters
	Shock	Below 9.8 m/s2 (10 to 20Hz), below 5.9 m/s2 (20 to 55Hz)
	Enclosure	IP20, NEMA1 (with NEMA kit option)
Number of I/O	Analog Input (AI)	2 points (AI1: 0 to 10V, -10 to 10V (12 bits), AI2: 0 or 4 to 20mA, 0 to 10V, 0 to 5V)
	Digital Input (DI)	8 points
	Analog Output (AO)	2 points (FM: 0 to 10V, -10 to 10V (10 bits), AM: 0 or 4 to 20mA (10 bits), 0 to 10V (11 bits)
	Digital Output (DO)	2 points
	Relay Output (RO)	2 points
	Pulse Input (PI)	1 point
	Pulse Output (PO)	1 point
Communications	Build-In	Modbus (RS-485), USB port
	Option	CANopen, Profibus-DP*2, Device Net*2, EtherCAT*2, Ethernet*2 , Profinet*2, LONWORK*2 and Powerlink*2

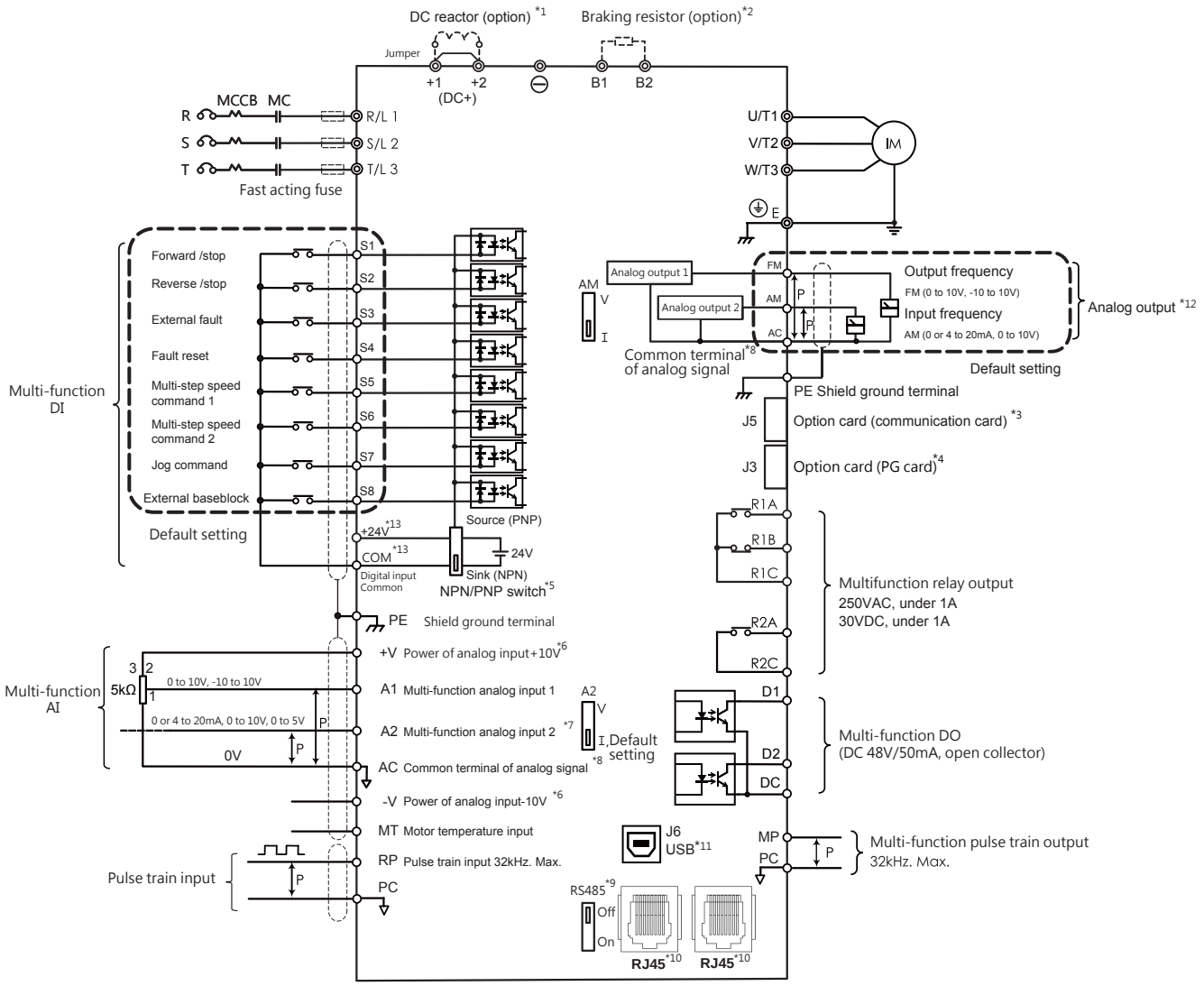
* 1. Results tested in lab, please contact local distributor for details.
* 2. To bo released soon.

14 / Terminal Block Description

Terminal Type	Terminal Name	Terminal Code	Terminal Discription	
Main Circiut	AC power input	R/L1	Input power terminal	
		S/L2		
		T/L3		
	Braking resistor	B1	30kW and below: Braking transistor built-in.	
		B2	Please purchase optional braking resistor to connect	
	Braking module	DC+	37kW and above: Please purchase optional braking module to connect	
		(+1 / +2)		
		DC-		
	DC reactor	DC+ / +1	30kW and below: Please remove the jumper and connect DC reactor to this terminal.	
		DC+ / +2	45kW and above: DC reactor built-in	
	AC drive output	U/T1	Please connect to AC motor	
		V/T2		
		W/T3		
	Gound terminal	E	Ground terminal for AC drive. Please ensure grounding is properly wired.	
Control Circuit	Digital input terminal 1	S1	Multi-function digital input terminals for forward/reverse, multi-step speed frequency, Jog command and etc (NPN/PNP)	ON : Forward OFF : Stop (defaut)
	Digital input terminal 2	S2		ON : Reversae OFF : Stop (defaut)
	Digital input terminal 3	S3		External fault (normal open)(defaut)
	Digital input terminal 4	S4		Fault reset (defaut)
	Digital input terminal 5	S5		Multi-speed frequency command 1 (defaut)
	Digital input terminal 6	S6		Multi-speed frequency command 2 (defaut)
	Digital input terminal 7	S7		Jog command (defaut)
	Digital input terminal 8	S8		ON : External baseblock (defaut)
	Digital input signal power[*1]	+24	+24V digital control signal common	
	Digital input common	COM	Common terminal of digital input for NPN/PNP mode switch. Please ensure the mode is selected correctly when connecting.	
	Digital output terminal 1	D1	Programmable digital output terminal	Zero Speed Holding (defaut)
	Digital output terminal 2	D2		Consistent speed (frequency) (defaut)
	Digital output common	DC	Digital output terminal	
	Auxiliary power	+V, -V	±10V auxiliary power terminal for analog input	
	Analog input terminal 1	A1	Multi-function analog input terminal 1, 0 to 10V/ -10 to 10V	Main frequency command (defaut)
	Analog input terminal 2	A2	Multi-function analog input terminal 2, 0 or 4 to 20mA/ 0 to 10V/ 0 to 5V	Auxiliary frequency command adds to main frequency command (defaut)
	Analog input	FM	Programmable analog output, 0 to 10V/ -10 to 10V	Output frequency (defaut)
	Analog input	AM	Multi-function analog output, 0 or 4 to 20mA/ 0 to 10V	Output current (defaut)
	Motor temperature sensor signal	MT	To connect temperature sensor of AC motor in order to make AC drive aware of motor operation termperature and react accordingly	
	Analog signal common	AC	Common terminal of analog signal	
	Pulse train input terminal	RP	To give command via pulse train input terminal	Frequency command (defaut)
	Pulse train output terminal	MP	Multi-function pulse train output	Output frequency (defaut)
	Common Pulse train terminal	PC	Common terminal for pulse train signals	
	Relay 1	R1A	Normal open terminal	Relay output DC30V 3A AC250V 5A
		R1B	Normal closed terminal	
		R1C	Common terminal	
	Relay 2	R2A	Normal open terminal	
		R2C	Common terminal	
	Shielded Ground	PE	Ground terminal for control signal shielded cable to effectively suppress external interference. Please ensure this is properly wired.	
Communication	RS-485 port	RJ45-1	To connect RS-485 communication at max. speed 115200 bps	
		RJ45-2		
	USB port	USB	To connect PC to use LiteON Studio software	

Notes：

*1. This catalog includes the blueprint of our products in the future. For more precise specifications, please refer to the quick start that alongside with our products. If you have any question, please contact our authorized distributors or Lite-On.



◎ indicates main circuit

○ indicates control circuit

indicates shielded cable

P indicates twisted-pair shielded cable

Notes:

*1. Please remove DC+(+1/+2) jumper when installing DC reactor.
*2. When using braking resistor, please ensure stall prevention function is off.
*3. J5 is port of optional communication card. Please refer to user manual when installing it.
*4. J3 is port of optional speed control feedback card (PG card). Such option card may be needed depending on control mode. Please also refer to user manual when installing it.
*5. Multi-function analog input S1~S8 can be switched between Sink(NPN) or Source(PNP) mode. Default: NPN mode.
*6.+V/-V is analog auxiliary power. Please do not connect +V with -V.
*7. Switch A2 is used to set analog input as voltage input or current input.
*8. AC is common terminal of analog signal (Analog Common).
*9. Switch of RS-485 terminal resistor. Please set the last AC drive's terminal resistor ON when paralleling multiple AC drives through communication.
*10. RJ45 is the communication port of RS-485.
*11. USB port is used to connect PC through USB cable.
*12. Analog output is used to connect frequency meter, current meter, voltage meter and power meter.
*13. This catalog includes the blueprint of our products in the future. For more precise specifications, please refer to the quick start that alongside with our products. If you have any question, please contact our authorized distributors or Lite-On.

04 / EVO 6800 Series

VF & Sensorless Vector Control

DESIGN AWARD 2016

01 / Multiple Installations / Remote Keypad

- Full power ranges can be flange / wall mounted.
- Standard with LED remote keypad, maximum extend to 200m.

02 / Excellent Overload Capability

- The improved current overload capabilities make our Drive a better performance during acceleration/deceleration, and overcome more harsh applications.

Load	Current Overload Capability	Main Applications
Heavy Duty (HD)	150% for 1 min., or 180% for 10 sec., or 200% for 1 sec. within every 10 min.	Operating in Heavy Duty
Normal Duty (ND)	120% for 1 min. within every 10 min.	Operating in Normal Duty

03 / Compact design & Full power range applications

- The compact design and full power ranges of EVO6800 provides the benefits of saving space and being able to adapt in many different applications and environments.

04 / Global Certifications

- All models comply with EU RoHS standards.
- Conformity to CE / UL / CUL.

05 / Ratings

400V Class												
Model	EVO680043S		D40	D75	1D5	2D2	3D7	5D5	7D5	011	015	018
Max. Motor Capacity	HP	HD	0.5	1	2	3	5	7.5	10	15	20	25
		ND	1	2	3	5(4)	7.5	10	15	20	25	30
	kW	HD	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5
		ND	0.75	1.5	2.2	3.7(3)	5.5	7.5	11	15	18.5	22
Input Voltage (V) / Frequency (Hz)			3 Phases, 380~480 V , -15% ~ +10% , 50/60Hz									
Rating Output	Current(ND)		--		5.44	6	10.8	14	25	31	38	45
	Current(HD)		1.5	2.5	4.2	5.5	9.5	12.6	18.5	25	32	38
	Max. Output (Hz)		0~400 Hz									
	Carrier Frequency (kHz)		2~12kHz						1~16kHz			
Cooling Method			Fanless		Fan							
Frame			0		1		2		3		4	

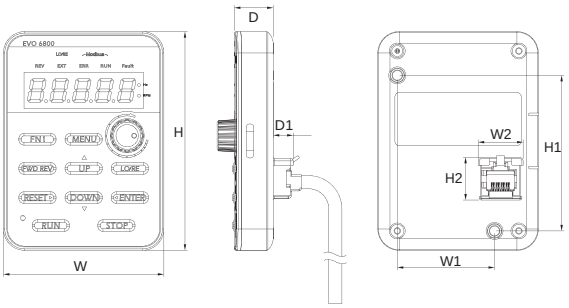
400V Class									
Model	EVO680043S		022	030	037	045	055	075	090	110
Max. Motor Capacity	HP	HD	30	40	50	60	75	100	125	150
		ND	40	50	60	75	100	125	150	175
	kW	HD	22	30	37	45	55	75	90	110
		ND	30	37	45	55	75	90	110	132
Input Voltage (V) / Frequency (Hz)			3 Phases, 380~480 V , -15% ~ +10% , 50/60Hz							
Rating Output	Current(ND)		60	75	92	115	150	180	215	260
	Current(HD)		45	60	75	92	115	150	180	215
	Max. Output (Hz)		0~400 Hz							
	Carrier Frequency (kHz)		1~16kHz							
Cooling Method			Fan							
Frame			5		6			7		

06 / Keypad Dimensions

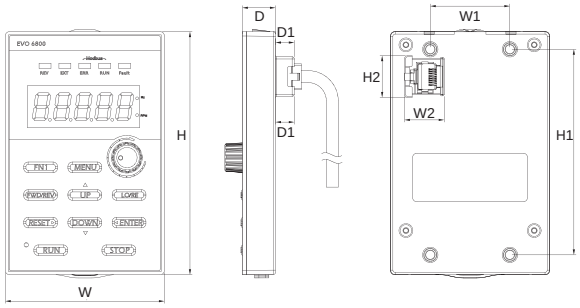
Unit : mm / inch

FRAME	W	W1	W2	H	H1	H2	D	D1
F1 & F2	66	40	18.5	90	64	17.6	16	8.2
F3	72	36	18	110	93	18.9	15	8.5

· Frame 1 & Frame 2



· Frame 3

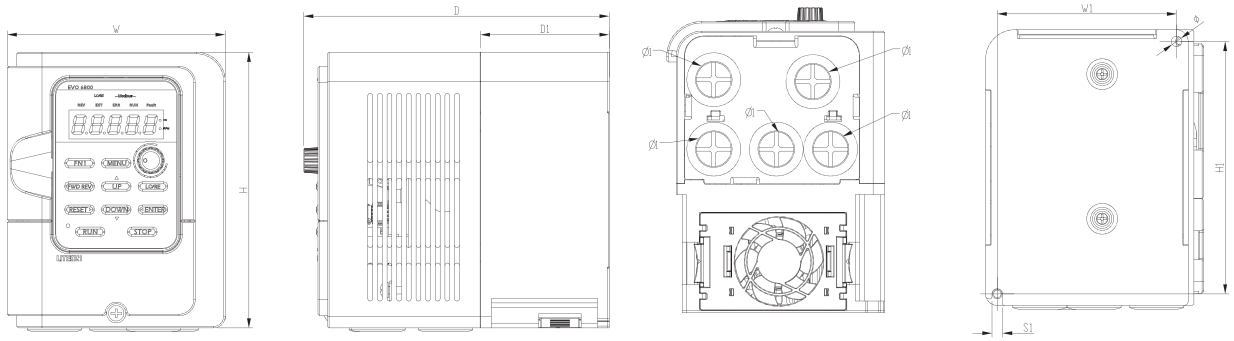


07 / Dimensions

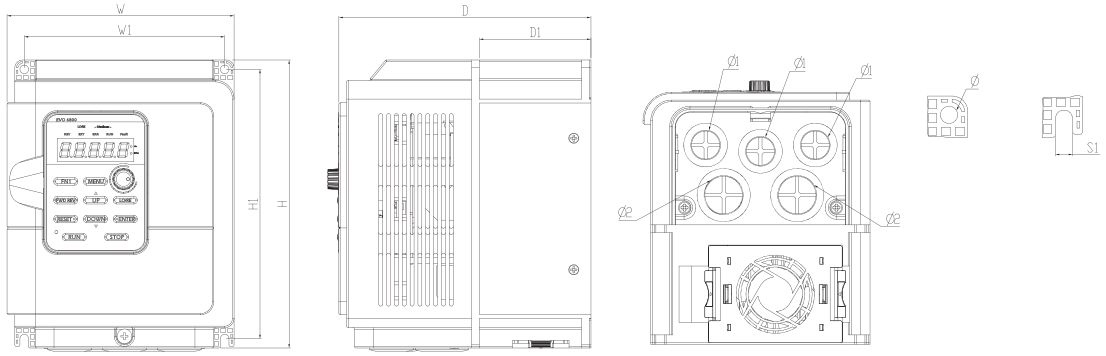
Unit : mm / inch

FRAME	W	W1	H	H1	D	D1	S1	Ø	Ø1	Ø2	Ø3
1	113 (4.45)	93 (3.66)	143 (5.63)	131 (5.16)	158.4 (6.24)	151 (5.89)	5.5 (0.22)	5.5 (0.22)	22 (0.87)	22 (0.87)	
2	145 (5.71)	128 (5.04)	184 (7.25)	172 (6.77)	168 (6.56)	161 (6.34)	5.5 (0.22)	5.5 (0.22)	22 (0.87)	22 (1.10)	
3	225 (8.79)	202 (7.89)	260 (10.16)	242 (9.46)	198 (7.74)	190 (7.42)	6.5 (0.25)	6.5 (0.25)	22 (0.86)	35 (1.36)	44 (1.73)

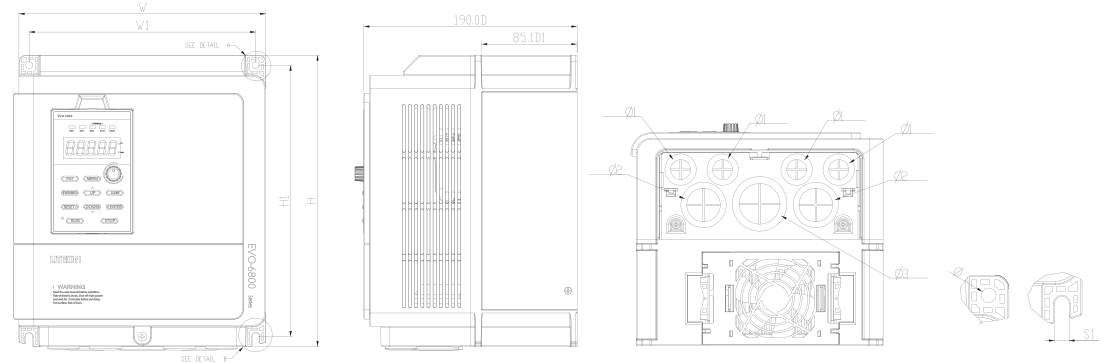
· Frame 1



· Frame 2

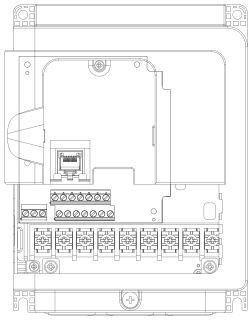


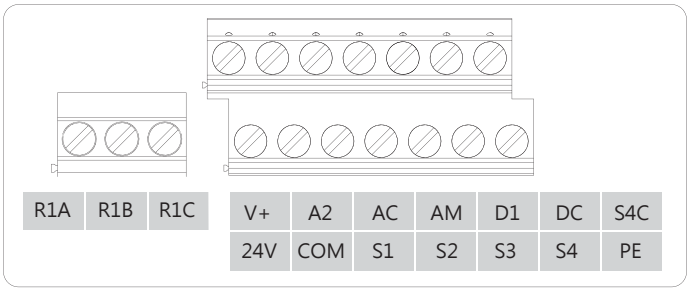
· Frame 3



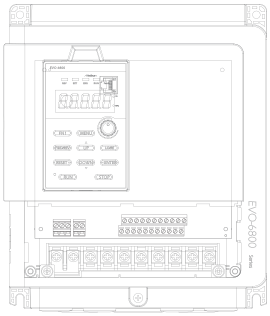
08 / Terminal Block Description

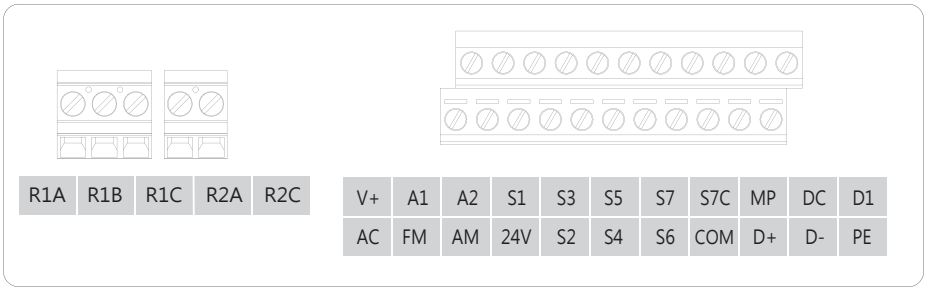
- 5.5kW and below :





- 7.5kW and above :





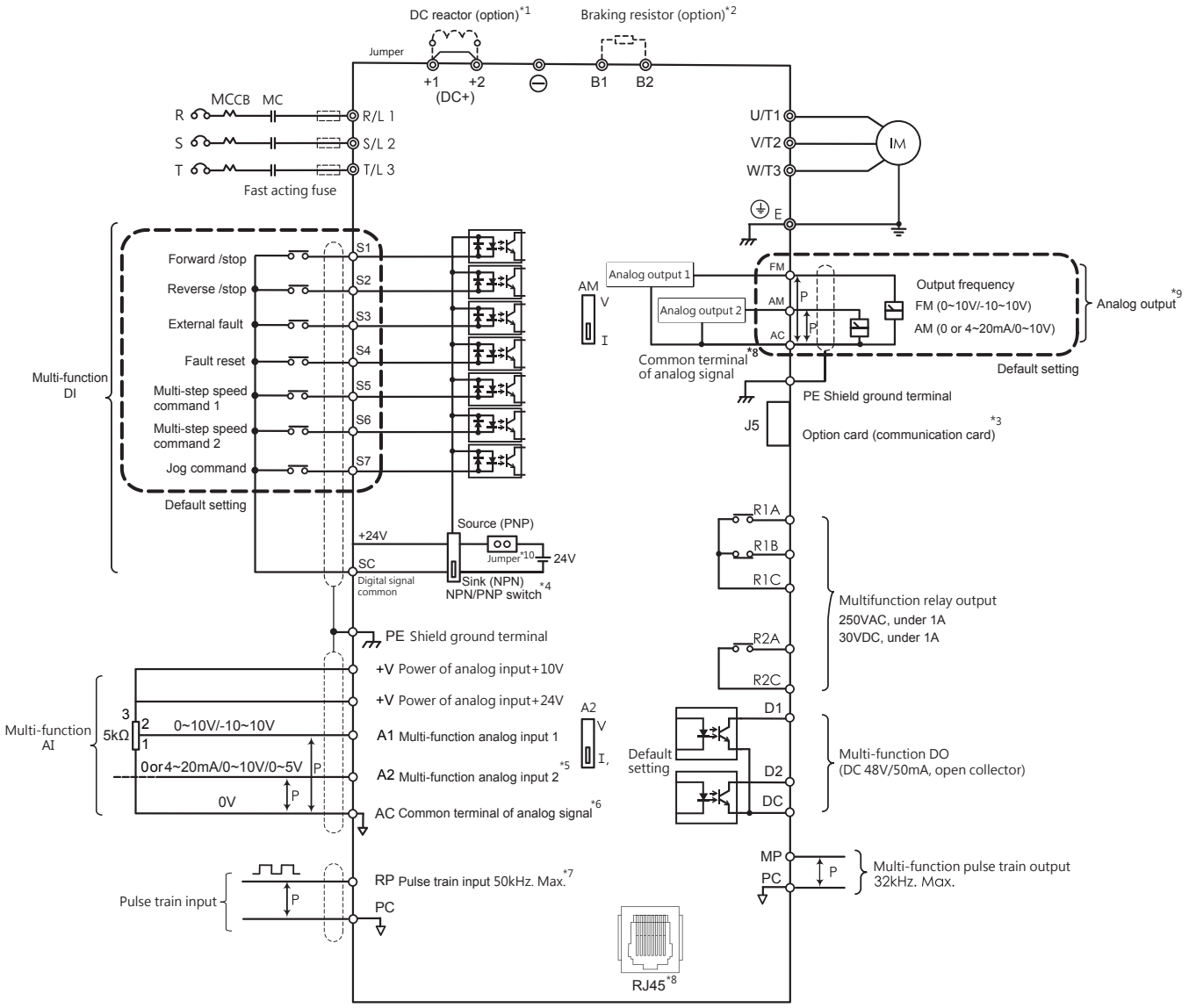
09 / Terminal Block Description

Type	Terminal Name	Code	Terminal Discription
Main Circiut	AC power input	R/L1	Input power terminal
		S/L2	
		T/L3	
	Braking resistor	B1	≦ 30kW: Braking transistor built-in. Please purchase optional braking resistor to connect
		B2	
	Braking module	DC+	≧ 37kW: Please purchase optional braking module to connect
		DC-	
	DC reactor	DC+ / +1	7.5kW to 30kW: Please remove the jumper and connect DC reactor to this terminal. ≦ 37kW: DC reactor built-in
		DC+ / +2	
	AC drive output	U/T1	Please connect to AC motor
		V/T2	
		W/T3	
	Gound terminal	E	Ground terminal for AC drive. Please ensure grounding is properly wired.

09 / Terminal Block Description

Type	Terminal Name	Code	Terminal Discription	
Control Circuit (≧ 7.5kW)	Digital input terminal 1	S1	Multi-function digital input terminals for forward/reverse, fault reset, Jog command and etc (NPN/PNP)	ON：Forward / OFF：Stop (defaut)
	Digital input terminal 2	S2		ON：Reverse / OFF：Stop (defaut)
	Digital input terminal 3	S3		External fault 1 (normal open)(defaut)
	Digital input terminal 4	S4		Fault reset (defaut)
	Digital input terminal 5	S5		Multi-speed frequency command 1 (defaut)
	Digital input terminal 6	S6		Multi-speed frequency command 2 (defaut)
	Digital input terminal 7	S7		Jog command (defaut)
	Digital input signal power	+24	+24V digital control signal common	
	Digital input common	SC	Common terminal of digital input for NPN/PNP mode switch. Please ensure the mode is selected correctly when connecting.	
	Digital output terminal 1	D1	Programmable digital output terminal	Zero Speed Holding (defaut)
	Digital output common	DC	Digital output terminal	
	Auxiliary power	+10V	+10V auxiliary power terminal for analog input	
	Analog input terminal 1	A1	Programmable analog input 1, 0 to 10V / -10 to +10V	Main frequency command (defaut)
	Analog input terminal 2	A2	Programmable analog input 2, 0 or 4 to 20mA / 0 to 10V / 0 to 5V	Auxiliary frequency command adds to main frequency command (defaut)
	Analog output	FM	Programmable analog output, 0 to 10V / -10 to 10V	Output frequency (defaut)
	Analog output	AM	Programmable analog output, 0 or 4 to 20mA / 0 to 10V	Output current (defaut)
	Analog signal common	AC	Common terminal of analog signal	
	Pulse train input terminal	RP	To give command via pulse train input terminal (RP & S7 share the common point, please modify the parameter to change default)	Frequency command (defaut)
	Pulse train output terminal	MP	Programmable pulse train output	Frequency command (defaut)
	Relay 1	R1A	Normal open terminal	Relay output DC30V 3A AC250V 5A
		R1B	Normal closed terminal	
		R1C	Common terminal	
	Relay 2	R2A	Normal open terminal	
		R2C	Common terminal	
	Shielded Ground	PE	Ground terminal for control signal shielded cable to effectively suppress external interference. Please ensure this is properly wired.	
	RS-485 port	RJ45-1	To connect RS-485 communication at max. speed 115200 bps	
		485+/485-	To connect RS-485 communication at max. speed 115200 bps	
Control Circuit (≦ 5.5kW)	Digital input terminal 1	S1	Multi-function digital input terminals for forward/reverse, fault reset, Jog command and etc (NPN/PNP)	ON : Forward / OFF : Stop (defaut)
	Digital input terminal 2	S2		ON : Forward / OFF : Stop (defaut)
	Digital input terminal 3	S3		External fault 1 (normal open)(defaut)
	Digital input terminal 4	S4		Fault reset (defaut)
	Digital input signal power	+24	+24V digital control signal common	
	Digital input common	SC	Common terminal of digital input for NPN/PNP mode switch. Please ensure the mode is selected correctly when connecting.	
	Digital output terminal 1	D1	Programmable digital output terminal	Zero Speed Holding (defaut)
	Digital output common	DC	Digital output terminal	
	Auxiliary power	+10V	+10V auxiliary power terminal for analog input	
	Analog input terminal 1	A2	Programmable analog input 1, 0 or 4 to 20mA / 0 to 10V / 0 to 5V	Main frequency command (defaut)
	Analog output	AM	Programmable analog output, 0 or 4 to 20mA / 0 to 10V	Output current (defaut)
	Analog signal common	AC	Common terminal of analog signal	
	Pulse train input terminal	RP	To give command via pulse train input terminal (RP & S4 share the common point, please modify the parameter to change default)	Frequency command (defaut)
	Relay 1	R1A	Normal open terminal	Relay output DC30V 1A AC250V 1A
		R1B	Normal closed terminal	
		R1C	Common terminal	
	Shielded Ground	PE	Ground terminal for control signal shielded cable to effectively suppress external interference. Please ensure this is properly wired.	
	RS-485 port	RJ45-1	To connect RS-485 communication at max. speed 115200 bps	

Item		Specification
Comtrol Characteristic	Control Method	V/F, Sensorless Voltage Vector Control (SVVC)
	Ouput Frequency	0~400 Hz
	Frequency Accuracy	Digital reference: within ±0.01% of the Max. output freqeuncy
		Analog reference: within ±0.1% of max. output frequency (-10℃ to +50℃)
	Frequency Setting Resolution	Digital input: 0.01Hz
		Analog Output: 1/1000 of max. frequency
	Starting Torque	150% / 3Hz(V/F)
		150% / 0.3Hz (IM Sensorless Voltage Vector Control)
	Speed Control Range	1: 40 (V/F)
		1:100 (Sensorless Voltage Vector Control)
	Speed Control Accuracy	±0.2% in Sensorless Voltage Vector Control
	Speed Response	> 5 Hz in Sensorless Voltage Vector Control
	Acc/Dec Time	0.0 ~ 6000.0
	Braking Torque	approx. 20%
	V/F Pattern	15 fixed and 1 programmable
	Overload Capacity	120% for 1 min. within every 10 min. (Normal Duty)
		150% for 1 min., or 180% for 10 sec., or 200% for 1 sec. within every 10 min.
Operating Environment	Area of Use	Indoor without corrosive gas/liquid or flammable gas/liquid/oil mist/dust
	Ambient Temperature	-10º C to +50º C, -10º C to +40º C (NEMA1) , below 90% RH without froze or condensation
	Storage Temperature	-20℃ ~ +60℃
	Altitude	Up to 1000 meters
	Shock	Below 9.8 m/s2 (10 to 20Hz), below 5.9 m/s2 (20 to 55Hz)
	Enclosure	IP20, NEMA1 (with NEMA kit option)
Number of I/O	Analog Input (AI)	≧7.5kW 2 points (A1: 0 to 10V, -10 to 10V (12 bits), A2: 0 or 4 to 20mA(11 bits), 0 to 10V(11 bits), 0 to 5V(10 bits)
		≦5.5kW 1 point (A1 : 0 or 4 ~20mA(11 bits), 0~10V(11 bits), 0~5V(10 bits)
	Digital Input (DI)	≧7.5kW: 7 points
		≦5.5kW: 4 points
	Analog Output (AO)	≧7.5kW: 2 points (FM : 0~10V, -10V~10V (10 bits); AM : 0 or 4~20mA (10 bits) /0~10V (11 bits)
		≦5.5kW: 1point (FM : 0~10V, -10V~10V (10 bits)
	Digital Output (DO)	1 point
	Relay Output (RO)	≧7.5kW: 2 points
		≦5.5kW: 1 point
	Pulse Input (PI)	1 point (1 Common digital input point)
	Pulse Output (PO)	1 point
	Build-In	Modbus (RS-485)
	Option	Profibus-DP, CANopen, EtherCAT



◎ indicates main circuit

○ indicates control circuit

indicates shielded cable

P indicates twisted-pair shielded cable

Notes：

*1. Please remove DC+(+1/+2) jumper when installing DC reactor.

*2. When using braking resistor, please ensure stall prevention function is off.

*3. J5 is port of optional communication card. Please refer to user manual when installing it.

*4. Multi-function analog input S1~S7 can be switched between Sink(NPN) or Source(PNP) mode. Default：NPN mode.

*5. Switch A2 is used to set analog input as voltage input or current input.

*6. AC is common terminal of analog signal (Analog Common).

*7. Pulse input and digital inputs share the same terminal (5.5kW or less shared S4,7.5kW more common S7).

*8. RJ45 is the communication port of RS-485.

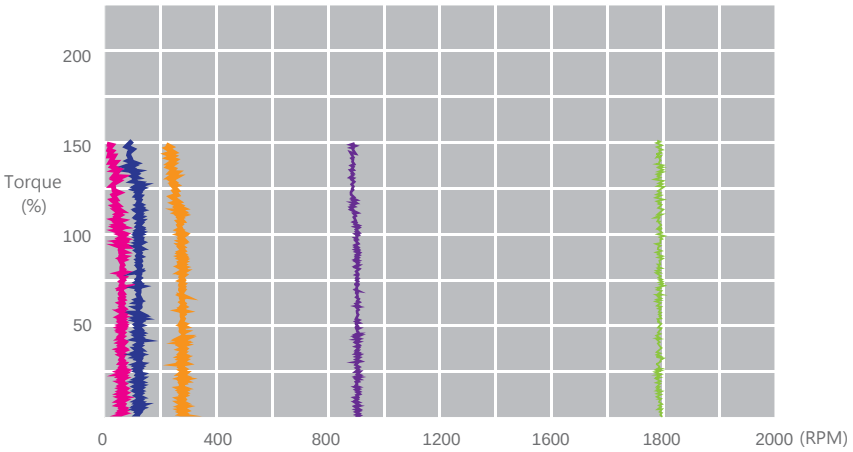
*9. Analog output is used to connect frequency meter, current meter, voltage meter and power meter.

*10. Insert the jumper to control board to use the internal 24V signal or remove it to use the external 24V signal.

05/ EVO 6000 Series

VF & Sensorless Vector Control

01 / Outstanding Control



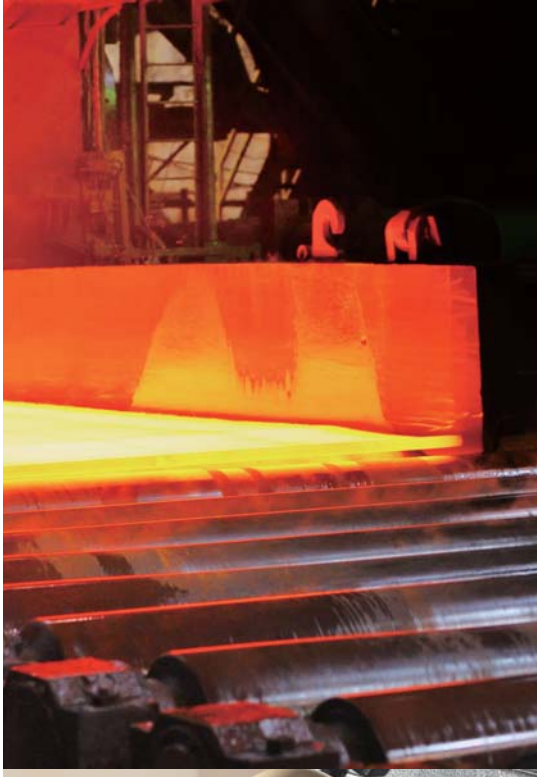
- V/F control
- Unique Sensorless Voltage Vector
- Accurate speed control
  1:40 (V/F)
  1:100 (SVVC)
- Excellent starting torque at low speed
  3Hz 150% (V/F)
  1Hz 150% (SVVC)

02 / User-friendly Design

- Ultra compact design to save room and facilitate easy replacement.
- Quick-release fan. Easy to maintain quick-release fan.
- Nonslip setting dial for convenient adjustment.
- Arrow key for speedy parameter setting.
- Supports Din Rail and side-by-side installation.
- Common DC bus to save cost for installation.

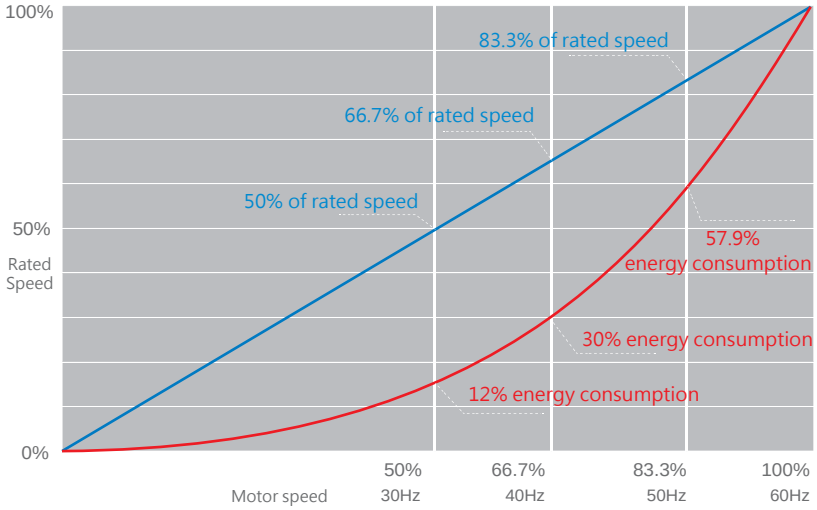
03 / Reliable Partner / Flexible Expansion (Option)

- Guarantee best-quality key components from top European and Japanese suppliers for longer operation life span.
- 18 month warranty.
- EMI filters built-in for all power ratings.
- Multiple industrial communications including Profibus-DP, CANopen and DeviceNet.
- Romote keypad(Max. 20 meters).
- Copy unit.



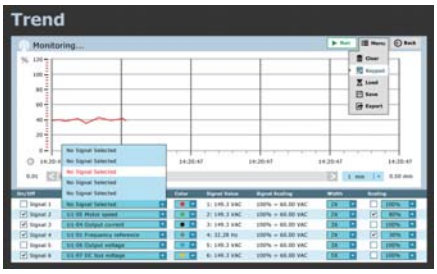
04 / Increase Efficiency With Even Less Cost

- Derated torque significantly reduces your energy bills for applications such as fans and pumps. This saves as much as 88% of energy when running at half of the rated speed.



- Adjust your conveyor speed and start smoothly to improve productivity, lower failure rate, abrasion and life span. Reduce your energy cost by running in energy saving mode.

05 / Easy To Maintain / Global Certifications



- Easy-to-use LiteON Studio monitors AC drives and its history data.
- Convenient parameter downloads and uploads via Copy Unit.
- All models comply with EU RoHS standards.
- Conformity to CE / UL / CUL.

06 / Ratings

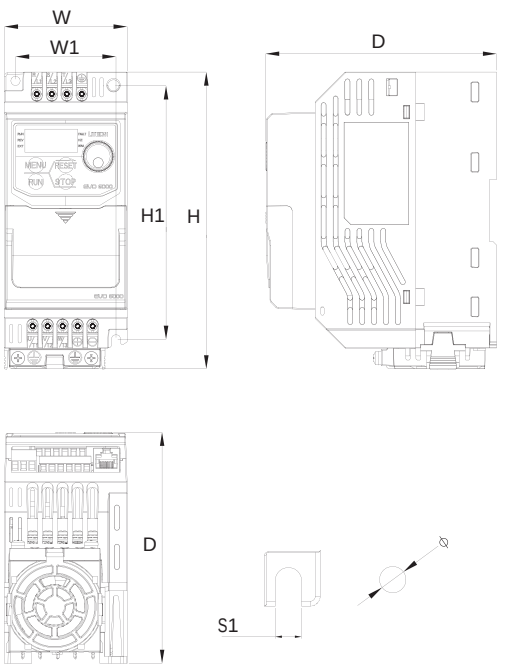
200V							
Model	EVO600021S	0D2	0D4	D75	1D5	2D2	- -
	EVO600023S	0D2	0D4	D75	1D5	2D2	3D7
Max. Motor Capacitor	HP	0.25	0.5	1	2	3	5
	kW	0.2	0.4	0.75	1.5	2.2	3.7
Input Voltage (V) / Frequency (Hz)		Single phase , 3 phase , 200 to 240 V , -15% to +10% , 50/60Hz					
Rated Output	Current	1.6	2.5	4.2	7.5	11	17
	Max. Output Frequency (Hz)	0 to 400 Hz					
	Carrier Frequency (kHz)	2 to12kHz					
Cooling Method		Fanless		Fan			
Frame		1				2	

400V						
Model	EVO600043S	0D4	D75	1D5	2D2	3D7
Max. Motor Capacitor	HP	0.5	1	2	3	5
	kW	0.4	0.75	1.5	2.2	3.7
Input Voltage (V) / Frequency (Hz)		3 phase, 380 to 480 V , -15% to +10% , 50/60Hz				
Rated Output	Current	1.5	2.5	4.2	5.5	8.2
	Max. Output Frequency (Hz)	0 to 400 Hz				
	Carrier Frequency (kHz)	2 to 12kHz				
Cooling Method		Fanless		Fan		
Frame		1			2	

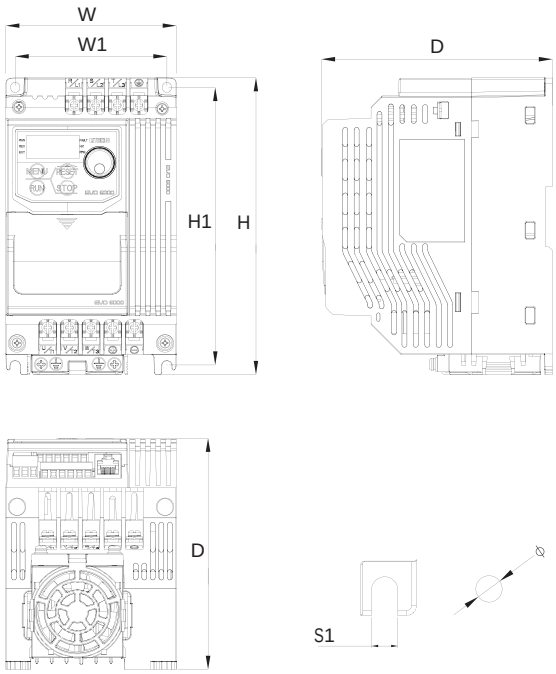
07 / Dimensions

FRAME	W	W1	H	H1	D	S1	Ø
1	72 〔 2.83 〕	59 〔 2.32 〕	174.2 〔 6.86 〕	151.6 〔 5.97 〕	135.6 〔 5.34 〕	5.4 〔 0.21 〕	5.4 〔 0.21 〕
2	100 〔 3.94 〕	89 〔 3.50 〕	174.2 〔 6.86 〕	162.9 〔 6.41 〕	135.6 〔 5.34 〕	5.8 〔 0.23 〕	5.8 〔 0.23 〕

Frame 1



Frame 2



08 / General Specification

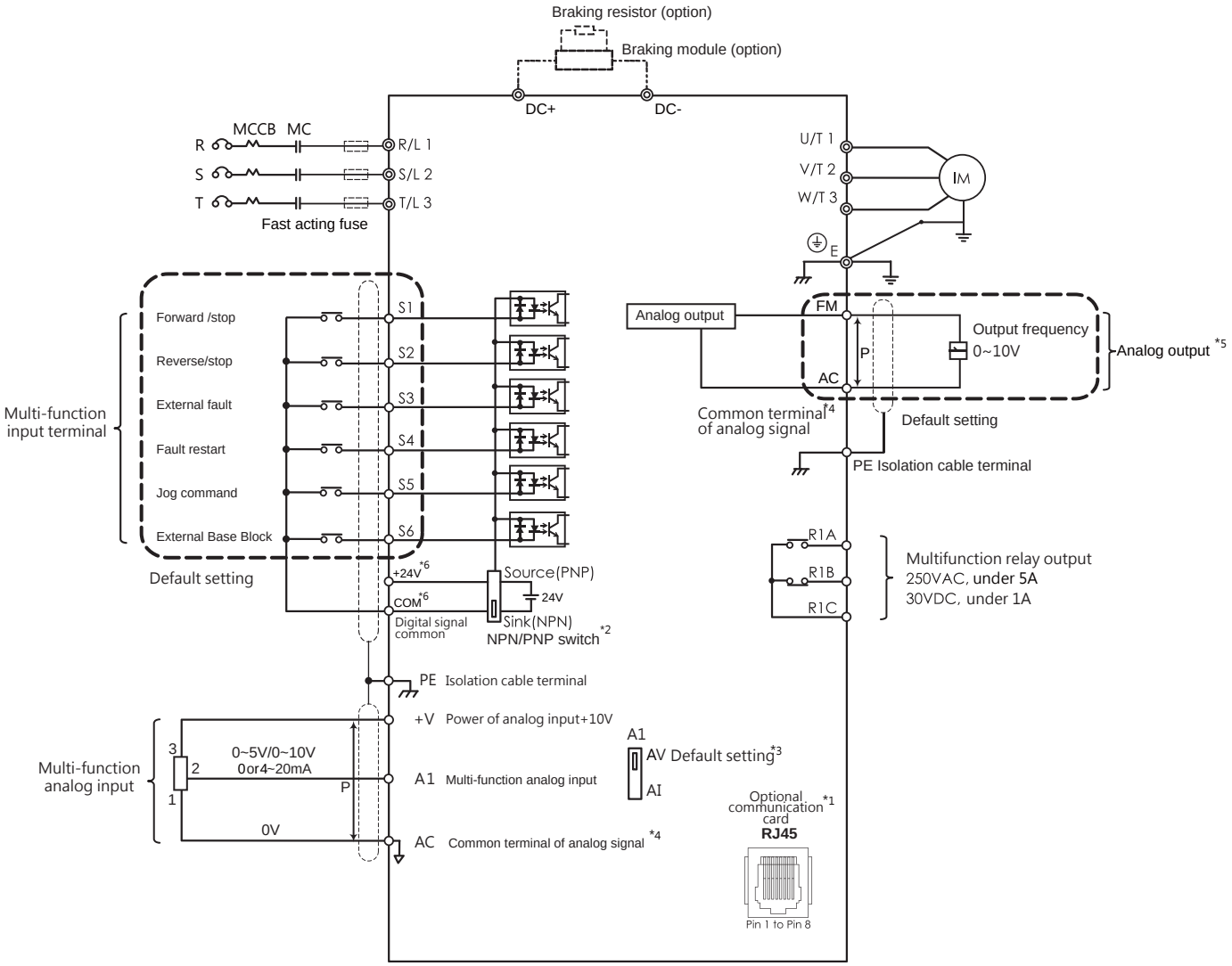
Item		Specification
Control Characteristic	Control Method	V/F, Sensorless Voltage Vector Control（SVVC）
	Ouput Frequency	1 to 400 Hz
	Frequency Accuracy	Digital reference: within ±0.01% of the Max. output freqeuncy
		Analog reference: within ±0.1% of max. output frequency (-10 ºC to +50 ºC)
	Frequency Setting Resolution	Digital input: 0.01Hz
		Analog Output: 1/1000 of max. frequency
	Starting Torque	150% / 1Hz(V/F)
	Speed Control Range	1: 40 (V/F) 1: 100 (SVVC)
	Acc./Dec. Time	0.0 to 3600.0 sec
	Braking Torque	approx. 20%
	V/F Patterm	15 fixed and 1 programmable
	Overload Capacity	150% for 1 min. every 10 min.
	Parameter Function	Overtorque / Undertorque Detection, Multi-Speed Operation, Acc. / Dec. Switch, S-Curve Acc. / Dec., 3-Wire Sequence Control, Auto-tuning、Cooling Fan ON / OFF Switch, Slip Compensation, Torque Compensation, Frequency Jump, Upper / lower Limits for Frequency Command, DC Draking at Run / Stop, PID Control including Pause Fuction, Energy Saving Mode, Fault Restart, Traverse, etc.
Operating Environment	Area of Use	Indoor without corrosive gas / liquid or flammable gas / liquid / oil mist / dust
	Ambient Temperature	-10 ºC to + 50 ºC , below 90% RH without froze or condensation
	Storage Temperature	-20 ºC to + 60 ºC
	Altitude	Up to 1000 meters
	Vibration	10 to 20 Hz (9.8 m/s2) , 20 to 55 Hz (5.9 m/s2)
	Enclosure	IP20
Number of I/O	Analog Input (AI)	1 point (AI : 0 to 5V, 0 to 10V (12 bits), 0 or 4 to 20mA)
	Digital Input (DI)	6 points
	Analog Output (AO)	1 point (FM: 0 to 10V (10bits))
	Relay Output (RO)	1 point
Communications	Build-In	Modbus (RS-485 port)
	Option	Profibus-DP, CANopen, DeviceNet

09 / Terminal Block Description

Terminal Type	Terminal Name	Terminal Code	Terminal Discription	
Main Circuit	AC power input	R/L1	Input power terminal	
		S/L2		
		T/L3		
	Braking module	DC+	Please purchase optional braking module to connect	
		DC-		
	AC drive output	U/T1	Please connect to AC motor	
		V/T2		
		W/T3		
	Gound terminal	E	Ground terminal for AC drive. Please ensure grounding is properly wired.	
Control Circuit	Digital input terminal 1	S1	Multi-function digital input terminals for forward/reverse, fault reset, Jog command and etc (NPN/PNP)	ON : Forward OFF : Stop (defaut)
	Digital input terminal 2	S2		ON : Reverse OFF : Stop (defaut)
	Digital input terminal 3	S3		External fault (normal open)(defaut)
	Digital input terminal 4	S4		Fault reset (defaut)
	Digital input terminal 5	S5		Jog command (defaut)
	Digital input terminal 6	S6		ON: External baseblock (defaut)
	Digital input signal power *1	+24	+24V digital control signal common	
	Digital input common	COM	Common terminal of digital input for NPN/PNP mode switch. Please ensure the mode is selected correctly when connecting.	
	Auxiliary power	+V	+10V auxiliary power terminal for analog input	
	Analog input terminal 1	A1	Programmable analog input1 0 to 5V, 0 to 10V, 0 or 4 to 20mA	Main frequency command (defaut)
	Analog input	FM	Programmable analog output 0 to 10V	Output frequency (defaut)
	Analog signal common	AC	Common terminal of analog signal	
	Relay	R1A	Normal open terminal	Relay output AC250V 1A DC30V 1A
		R1B	Normal closed terminal	
		R1C	Common terminal	
	Shielded Ground	PE	Ground terminal for control signal shielded cable to effectively suppress external interference. Please ensure this is properly wired.	
	RS-485 port	RJ45	To connect RS-485 communication at max. speed 38400 bps	

Notes：

*1. This catalog includes the blueprint of our products in the future. For more precise specifications, please refer to the quick start that alongside with our products. If you have any question, please contact our authorized distributors or Lite-On.



◎ indicates main circuit

○ indicates control circuit

indicates isolation cable

P indicates twisted-pair isolation cable

Notes：

*1. RJ45 is port of optional communication card. Please refer to user manual when installing it.

*2. Multi-function analog input S1~S6 can be switched between Sink(NPN) or Source(PNP) mode. Default: NPN mode.

*3. A1 is used to set analog input as voltage input or current input.

*4. AC is common terminal of analog signal (Analog Common).

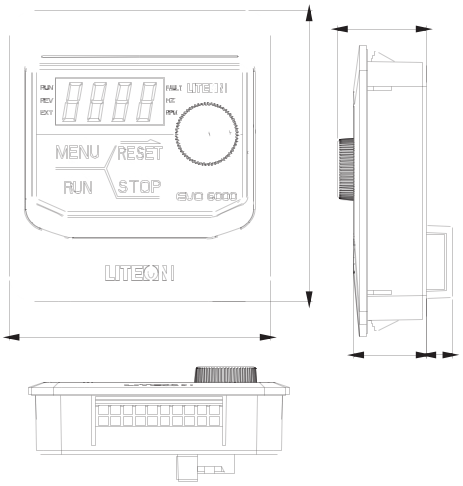
*5. Analog output is used to connect frequency meter, current meter, voltage meter and power meter.

*6. This catalog includes the blueprint of our products in the future. For more precise specifications, please refer to the quick start that alongside with our products. If you have any question, please contact our authorized distributors or Lite-On.

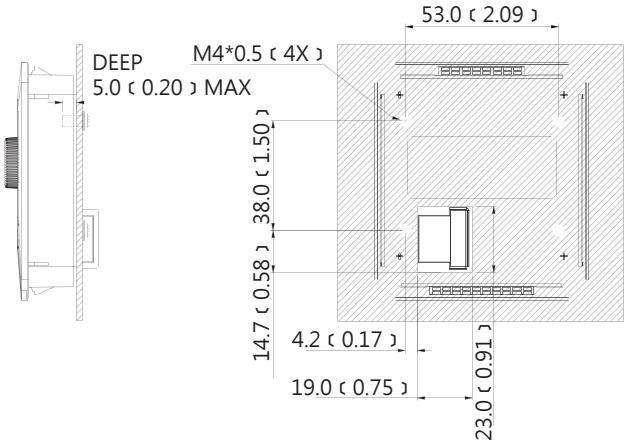
11 / Remote keypad

- Monitors and edits parameter settings.
- Supports installation on the cabinet without any extra kit.
- Supports 2 installation types.
- Maximim 50 meter cable length.
- Same keys as the built-in LED keypad.
- Connected via RJ45.

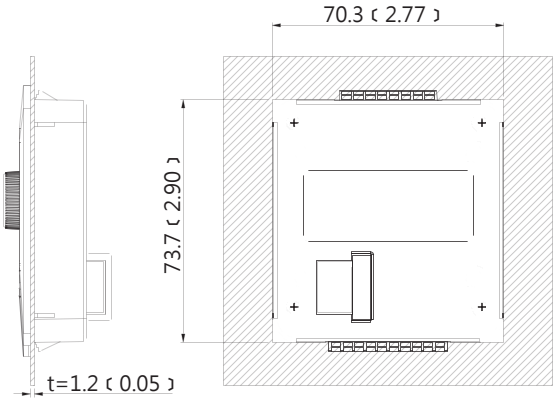
- Remote keypad size



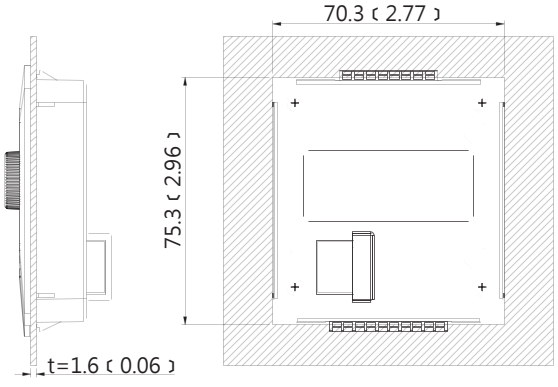
- Screw Installation



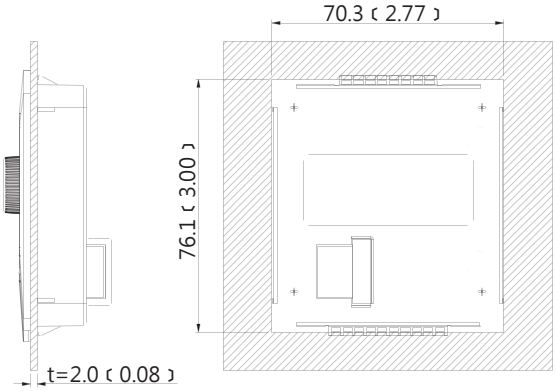
- Embedded Installation
- Board thickness=1.2mm (0.05inches)



- Embedded Installation
- Board thickness=1.6mm (0.06inches)



- Embedded Installation
- Board thickness=2.0mm (0.08inches)



12 / Copy unit

- The Copy Unit provides user convenience to manage a large number of EVO series AC motor drive parameters. This unit can set parameter of inverter quickly and saved up to 8 sets of parameter in this device. Please use RJ45 cable(less than 10m) for connecting to AC motor drive.
- Quickly copy all parameter settings at once.
- Saves up to 8 sets of inverter setting.
- Reads and loads parameter settings.
- Setting comparisn function built-in.
- Connected via RJ45.

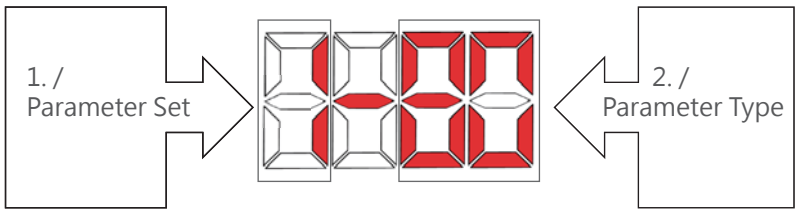
- Outline & Keys

No	Key	Name	EVO Series Common Accessories
1.	READ	Read	Upload parameters from inverter to copy unit.
2.	COPY	Copy	Download parameters from copy unit to inverter.
3.	VERIFY	Read	Compare copy unit and inverter parameters.
4.	SELECT	Read	Select parameter set.

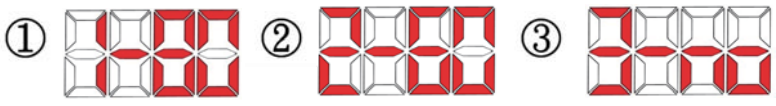
- Parameter Settings

Parameter	Parameter name	Description	Value
E6-07	RS-485 Communication baud rate setting	9600 bps	3
E6-08	RS-485 Communication parity selection	8,N,1(MODBUS RTU)	1

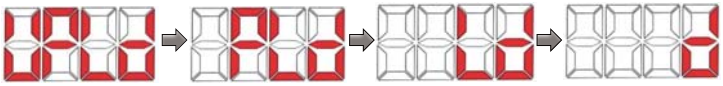
- Parameter Set Display Description
  The quadruple digit seven-segment display has two parts. One is the parameter set part. It can be changed by pressing [Select Key]. The second part is the parameter type. It means inverter model parameter saved in this parameter set.
  (Ex. EVO 8000→80, EVO6000→60, No parameter→no)



- Operating State Display Description
  Ready state display (examples) :

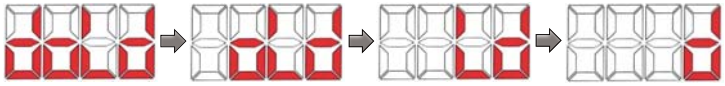


* Uploading state display :



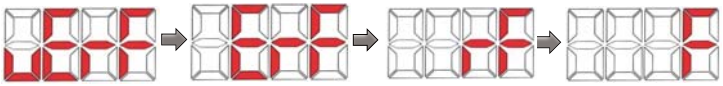
* Parameters uploading error :

* Downloading state display :

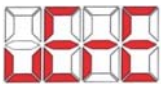


* Parameters downloading error :

* Verifying state display :



* Parameters verifying error :



13 / Accessories

EVO Series Common Accessories		
Name	Model Number	Description
Copy unit	EVO-Kit-CU	Allows parameter uploads / downloads and comparison
RJ45 cable	EVO-CBL- ☐ MRJ	Connects AC drive to PC or remote keypad (☐ indicates 1, 3, 5 meters)
EVO 8000 Series		
Name	Model Number	Description
Profibus-DP communication card*	EVO68-Comm-PB	Connects AC drive with Profibus-DP for remote setting and monitoring
CANopen communication card	EVO68-Comm-CO	Connects AC drive with CANopen for remote setting and monitoring
DeviceNet communication card*	EVO8-Comm-DN	Connects AC drive with DeviceNet for remote setting and monitoring
EtherCAT communication card*	EVO8-Comm-EC	Connects AC drive with EtherCAT for remote setting and monitoring
Ethernet communication card*	EVO8-Comm-EN	Connects AC drive with Ethernet for remote setting and monitoring
EtherNet / IP communication card*	EVO68-Comm-EI	Connects AC drive with EtherNet / IP for remote setting and monitoring
Profinet communication card*	EVO8-Comm-PN	Connects AC drive with Profinet for remote setting and monitoring
LONWORKS communication card*	EVO8-Comm-LW	Connects AC drive with LonWorks for remote setting and monitoring
Powerlink communication card*	EVO8-Comm-PL	Connects AC drive with Powerlink for remote setting and monitoring
Open collector PG feedback card	EVO8-PG-O	PG card for open collector signal
Line Driver PG feedback card	EVO8-PG-L	PG card for line driver signal
PG feedback card for permanent motor*	EVO8-PG-PM	PG feedback card for permanent motor
NEMA 1 kit	EVO68-Kit-N1	Upgrade AC drive enclosure to NEMA 1
USB cable	EVO8-CBL- ☐ MUSB	Connects AC drive to PC (☐ indicates 1, 3, 5 meters)
EVO 6000 Series		
Name	Model Number	Description
Profibus-DP communication card	EVO6-Comm-PB	Connects AC drive with Profibus-DP for remote setting and monitoring
CANopen communication card*	EVO6-Comm-CO	Connects AC drive with CANopen for remote setting and monitoring
DeviceNe communication card*	EVO6-Comm-DN	Connects AC drive with DeviceNet for remote setting and monitoring
Braking unit	EVO6-DBU-2 ☐☐☐	Connects AC drive terminal DC+, DC- to significantly improve braking. Please ensure braking resistor is properly installed. (☐☐☐ indicates 1D5 or 3D7 model)
	EVO6-DBU-4 ☐☐☐	
Braking resistor	Please refer to manual when selecting resistor type	Connects braking module to dissipate regenerative power
DIN rail	EVO6-Kit-DR ☐	Accessory for DIN rail installation (☐ indicates frame 1 or 2)
Grounding plate	EVO6-Kit-PE	Increases the number of ground terminals
Remote keypad	EVO6-Kit-RK	Connects remote keypad for remote setting and monitoring

*1. Under development.Contact distributor for more details.

14 / Model Definition

EVO 8000 43 S 0D4 E 20 F

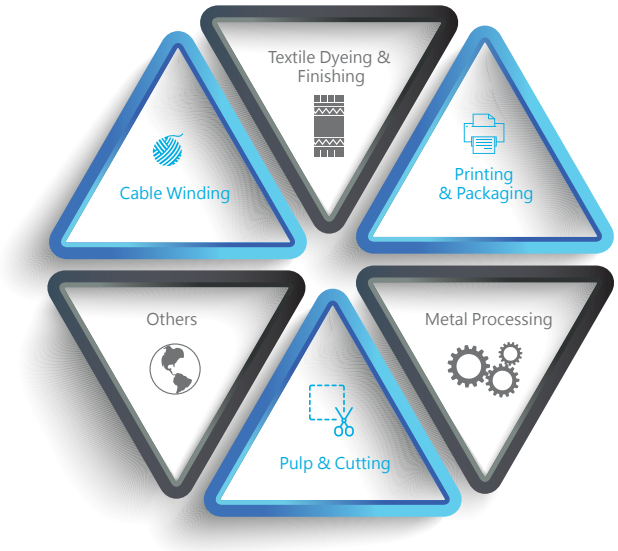
- Product: EVO: Lite-On AC drive
- Series: 8000 : 8000 series; 6800 : 6800 series; 6000 : 6000 series
- Input Voltage: 21 : 200V single phase; 23 : 200V 3 phase; 43 : 400V 3 phase
- Version: S: Standard version
- Power Rating: 0D2 : 0.2kW; 0D4 : 0.4kW; D75 : 0.75kW; 1D5 : 1.5kW; 2D2 : 2.2 kW; 3D7 : 3.7kW; 5D5 : 5.5kW; 7D5 : 7.5kW; 011 : 11kW; ⋮; 075 : 75kW
- Keypad: E: LED display; C: LCD display
- Enclosure: 00 : IP00; 20 : IP20; N1 : NEMA1
- Filter: □ : None; F : EMI filter built-in

EVO 8000L Series

We take care of your tension control applications.

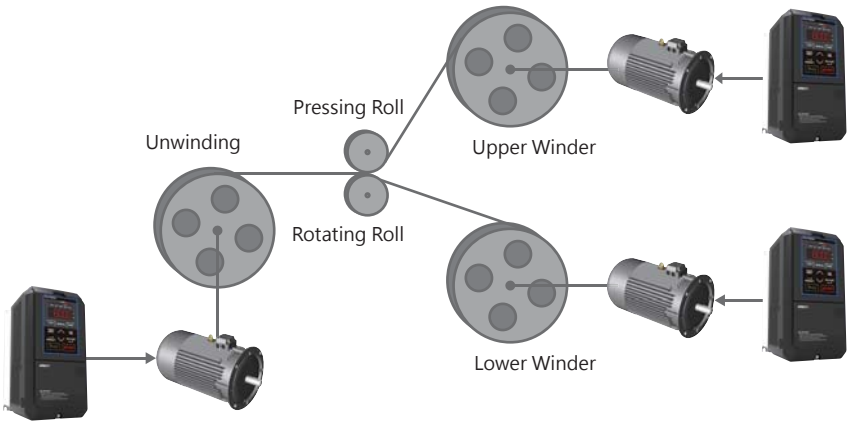
- Textile Dyeing & Finishing
- Printing & Packaging
- Cable Winding
- Pulp & Cutting
- Metal Processing

01 / EVO 8000L Series Features



EVO 8000L Series

02 / Packaging



- Built-in tension controller.
- Advanced sensorless vector control technology with slip compensation and auto torque boost .
- No need to buy any speed sensor as the sensorless mode already provides stable speed, high precision and fast dynamic response.

03 / Printing

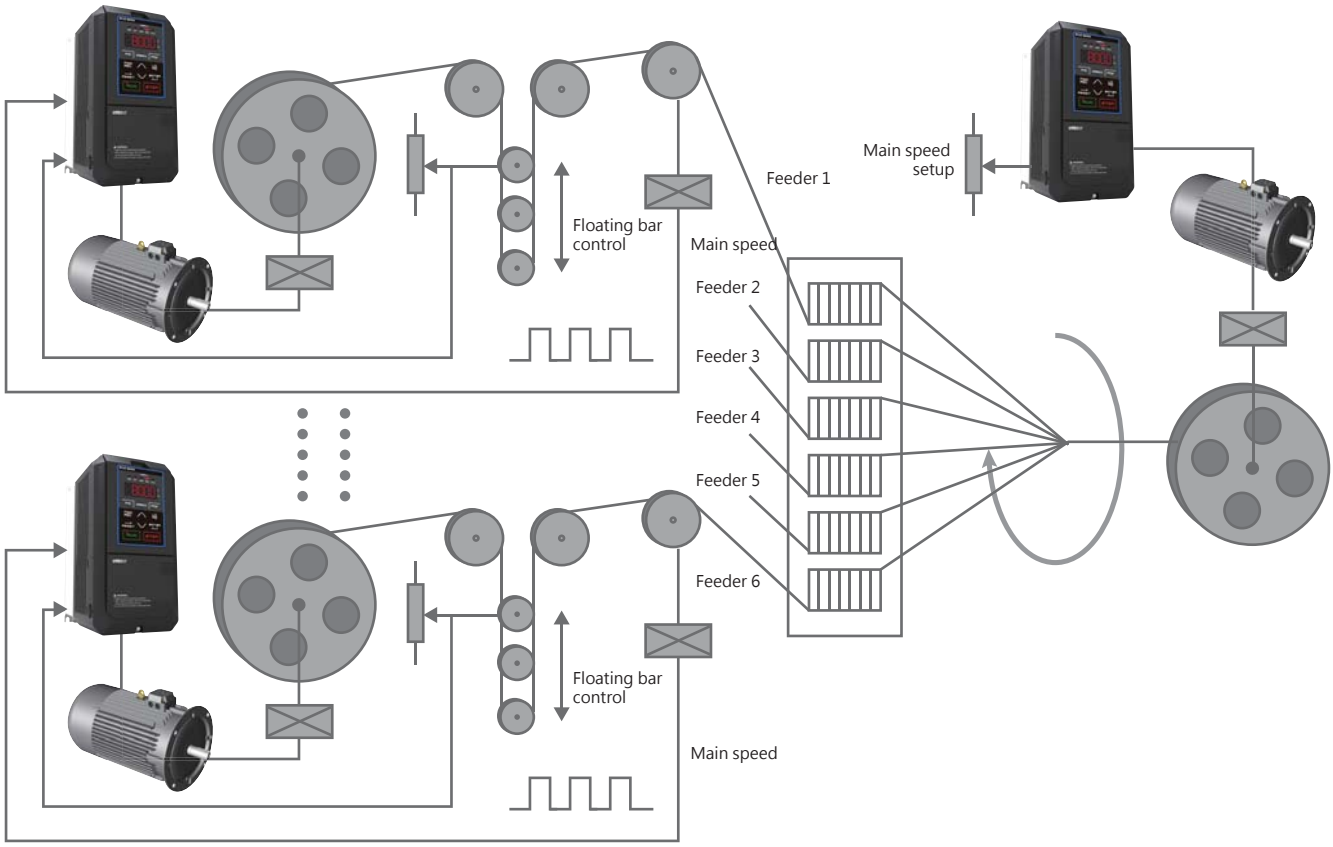
- High-precision speed control improve vague and fading prints.
- Built-in high-torque V/F auto-compensation.
- Built-in RS-485
- Built-in all protections.
- Copy Unit option can copy all settings at once.
  PM Motor Sensorless Vector Control
- Minimums the speed fluctuation and avoids uneven color.
- Reduces failure rate and maximizes the production.

04 / Cable Winding

With tension feedback signal changes, stable tension

- Built-in tension controller.
- PLUG IT AND RUN IT!

  Very few settings are required as all the default settings are made for tension control applications.
- Continuously optimizes the tensions according to tension signal feedback.
- We give you smooth start, stable operation and constant tension.



05 / Textile Dyeing & Finishing

- High-precision vector control.
- The built-in Traverse function effectively avoids the uneven material winding.
- EVO8000L always delivers a constant speed and torque to keep the tension just right and stable.

06 / Ratings

400V												
Model Number	EVO800043S		D75	1D5	2D2	3D7	5D5	7D5	011	015	018	022	030
Max. Motor Capacitor	HP	HD	1	2	3	5	7.5	10	15	20	25	30	40
		ND	2	3	5	7.5	10	15	20	25	30	40	50
	kW	HD	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30
		ND	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37
Rating Intput	Current (ND)		6.7	8.9	11.3	17.6	21	32.8	38.8	45.8	53.8	63.8	78.1
	Current (HD)		5.3	7.9	9.6	14.9	20	25	30.1	38.5	45.9	49.5	62.4
	Input Voltage (V) / Frequency (Hz)		3 Phase , 380 to 480 V , -15% to +10% , 50/60Hz										
Rating Output	Current (ND)		4.1	5.4	6.9	10.7	13	24	31	38	43.2	56.8	70.1
	Current (HD)		3.4	4.8	5.5	9	12	17.7	23.9	31	37.5	43.6	59.7
	Max. Output Frequency (Hz)		0 to 400 Hz										
	Carrier Frequency (kHz)		1 to 16kHz										
Cooling Method			Fan										
Frame			1			2			3			4	

07 / Model Definition

EVO 8000 □□ S 0D4 E 20 F

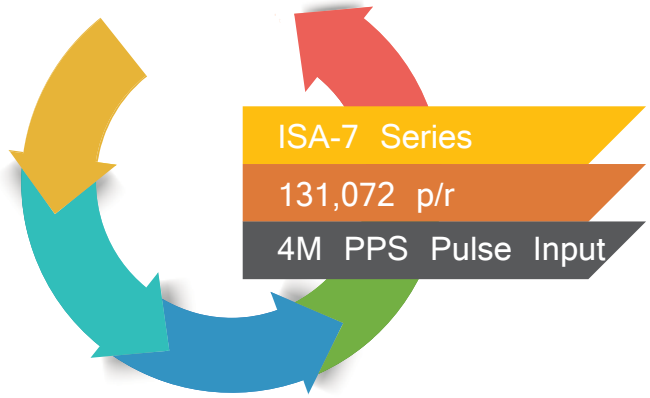
- Product: EVO : Lite-On AC drive
- Series: 8000 : 8000 series
- Input Voltage: 21 : 200V single phase; 23 : 200V 3 phase; 43 : 400V 3 phase
- Version: S : Standard version; L : Tension control
- Power Rating: 0D2 : 0.2kW; 0D4 : 0.4kW; D75 : 0.75kW; 1D5 : 1.5kW; 2D2 : 2.2 kW
- Keypad: E : LED display; C : LCD display
- Enclosure: 00 : IP00; 20 : IP20; N1 : NEMA□
- Filter: □: None; F : EMI filter built-in

07/Servo ISA-7 Series

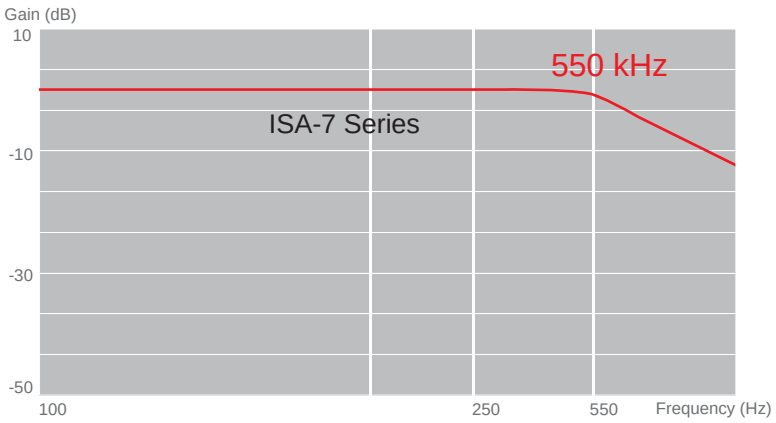
High Precision Control at High Speed

01 / Performance high-precision positioning control

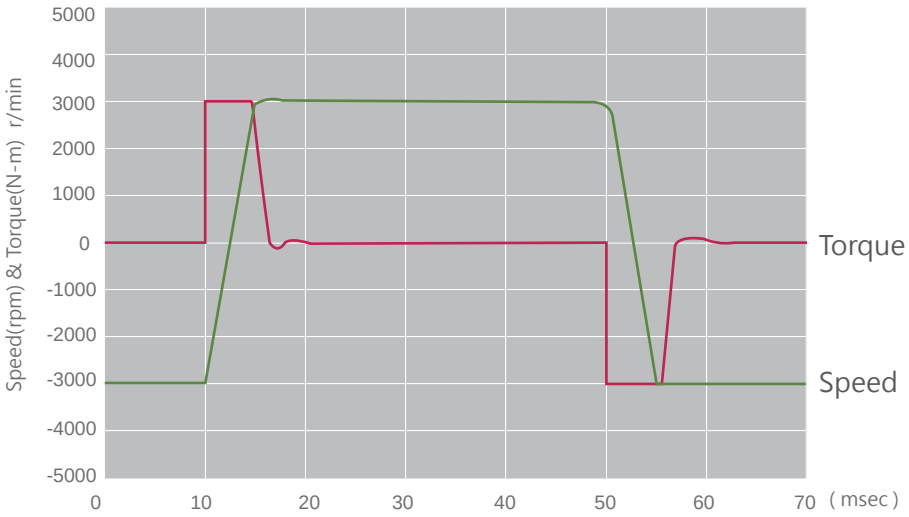
- ISA-7 Series servo drives support high resolution 17-bit (131,072) incremental encoders to provide high-precision positioning control and stable rotation at low speeds.
- 17-bit resolution encoders reduce torque ripple to increase precision of the motor.



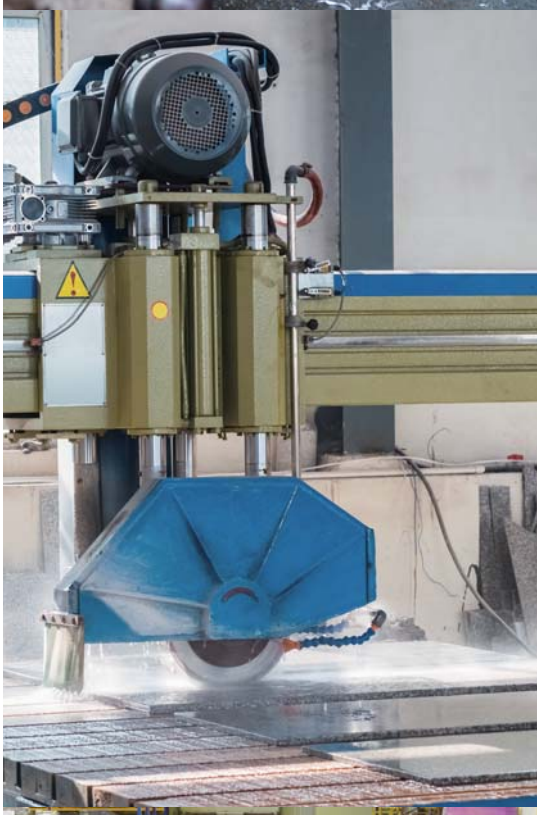
02 / Excellent Performance at High Speed



- When the frequency response up to 550 kHz, the settling time is below 1ms.



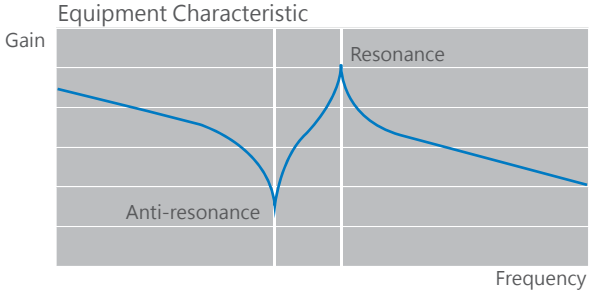
- It takes ONLY 8 ms for ISA-7 series to accelerate from -3000 rpm to 3000 rpm without load.



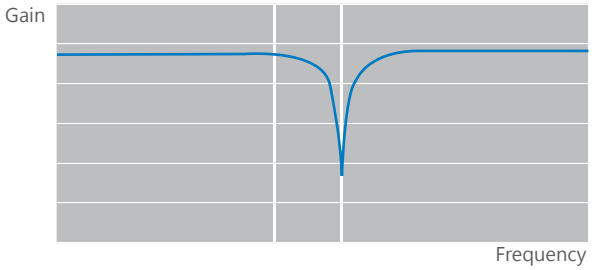
03 / Multiple control modes for various applications

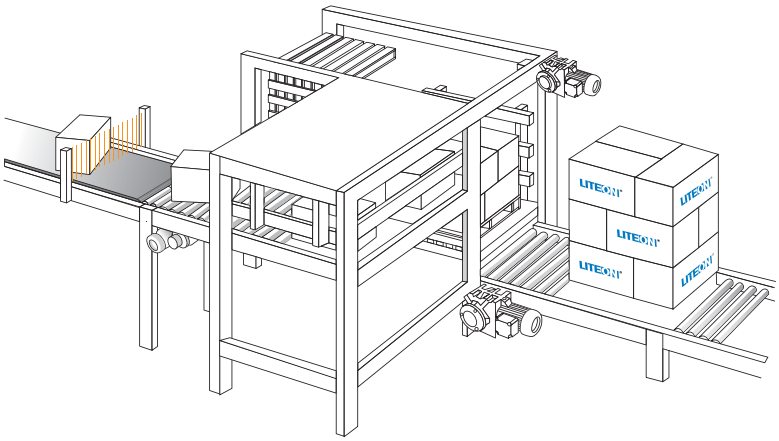
- Build in position control mode, speed control mode, and torque control mode.
  (Speed and torque control can be selected by paro meter or analog voltage signal.)
- Accept pulse input (up to 4MHz) to achieve high precision positioning requirements.
- With two auto-notch filters, the mechanical resonance is suppressed effectively to smooth machine operation.

Equipment Characteristic



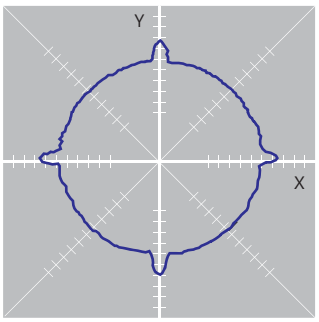
Notch Filter Characteristic



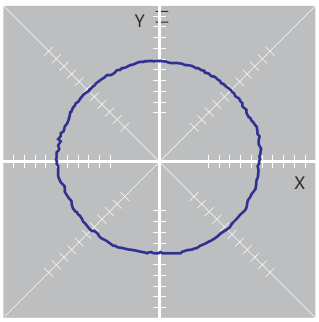


Reduce resonance and vibration

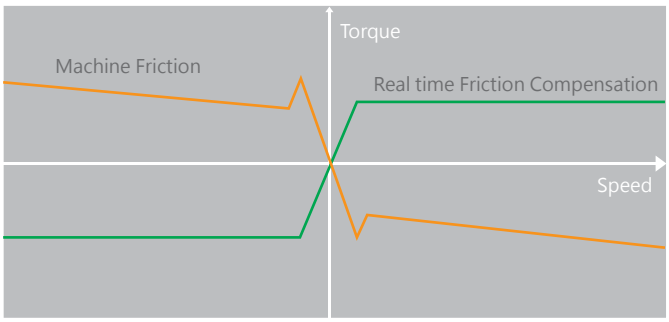
- Reduce host controller's burden by providing feedforward friction compensation and load torque observer applied to circular contouring process, z-axis direction moving or ball-screw mechanisms.



Without Friction Compensation



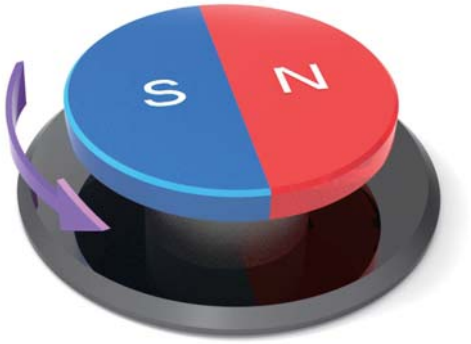
With Friction Compensation

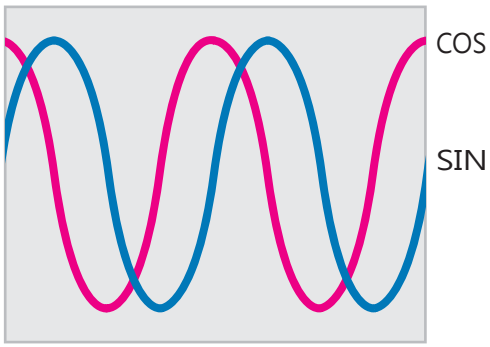


- Befer Performance ! Supports those machines which need torque control.

04 / High Precision Magnetic Encoder

- EXCELLENT IMMUNITY.
- Simple design for BEST STABILITY.
- Competitive pricing.





05 / Servo Motors Conform To IP-65 Rating

06 / Global Certifications

- All models comply with RoHS、CE、UL and cUL.

07/ ISA-7 Servo Drive General Specification

Item		Specification					
Servo amplifier model ISA-7		400W 040A	750W 075A	1kW 100A	1.5kW 150A	2.0kW 200A	3.0kW 300A
Output	Rated voltage (Note 1)	3-phase 170VAC					
	Rated current [A] (Note 1)	2.8	5.8	6.0	10.0	11.0	17.0
Main circuit power supply input	Voltage/frequency	3-phase AC 200 ~ 230V / 50 , 60Hz 1-phase AC 230V / 50 , 60Hz			3-phase 200VAC-230VAC · 50/60Hz		
	Rated current [A] (Note 1)	2.6	3.8	5.0	8.0	10.5	16.0
	Permissible voltage fluctuation	3-phase or 1-phase 170VAC to 264VAC			3-phase 170VAC to 264VAC		
	Permissible frequency fluctuation	±5% maximum					
Control circuit power supply input	Voltage/frequency	1-phase 200VAC to 240VAC, 50/60Hz					
	Rated current [A]	0.2					
	Permissible voltage fluctuation	1-phase 170VAC to 264VAC					
	Permissible frequency fluctuation	± 5% maximum					
	Power consumption [W]	30					
Interface power supply		24VDC ±10% (required current capacity: 0.5A)					
Control of Main Circuit		Space-vector PWM control/current control method					
Built-in regenerative resistor power [W]		10	20	20	20	100	100
Dynamic brake		Built-in					
Communication function		RS232/RS485					
Encoder output pulse		Compatible (A/B/Z-phase pulse)					
Analog monitor		2 channels, monitor signal can set by parameters (Output voltage range : ±8V/±10V)					
Control Method		Pulse / Analog Command					
Position control mode	Maximum input pulse frequency	500k/4MHz (when using differential receiver), 200kHz (when using open collector)					
	Command pulse type	Pulse + Direction, A phase + B phase, CCW pulse + CW pulse					
	Command source	External pulse train					
	Smooth strategy	Low-pass and P-curve filter					
	Positioning feedback pulse	Encoder resolution: 20 bits					
	Command pulse multiplying factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000					
	Positioning complete	0 to ±65535 pulses (command pulse unit)					
	Error excessive	±10 rotations					
	Torque limit	Set by parameters or external analog input (0 to +10VDC/maximum torque)					
	Feed-forward compensation	Set by parameters					

Item		Specification					
Servo amplifier model ISA-7		400W 040A	750W 075A	1kW 100A	1.5kW 150A	2.0kW 200A	3.0kW 300A
Speed control mode	Speed control range	Analog speed command 1:2000, internal speed command 1:5000					
	Frequency response characteristic	550Hz maximum					
	Command source	External analog signal/Internal parameters					
	Smooth strategy	Low-pass and S-curve filter					
	Analog speed command input	0 to± 10VDC/ rated speed (Speed at 10V is changeable with parameter) (input impedance: 10kΩ to 12kΩ)					
	Speed fluctuation rate	±0.01% maximum (load fluctuation: 0 to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25°C ±10°C) only when using analog speed command					
	Torque limit	Set by parameters or external analog input (0 to +10VDC/maximum torque)					
Torque control mode	Command source	External analog signal					
	Smooth strategy	Low-pass filter					
	Analog torque command input	0 to ±8VDC/maximum torque (input impedance: 10kΩ to 12kΩ)					
	Speed limit	Set by parameters or external analog input (0 to ±10VDC/rated speed)					
Digital inputs/outputs	Inputs	Servo on, reset, gain switching, pulse clear, zero speed clamp, command input reverse control, command triggered, speed/torque limit enabled, position command selection, motor stop, speed command selection, position/speed mode switching, speed/torque mode switching, torque/position mode switching, emergency stop, forward/reverse inhibit limit, forward/reverse operation torque limit, forward/reverse JOG input, electronic gear ratio (numerator) selection and pulse inhibit input					
	Outputs	Encoder signal output (A, B, Z line driver and Z open collector)					
		Servo ready, servo on, at zero speed, at speed reached, at positioning completed, at torque limit, servo alarm (servo fault) activated, electromagnetic brake control, output overload warning, servo warning activated, position command overflow, forward/reverse software limit					
Protective functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection					
Compliance to standards		IEC/EN 61800-5-1 · UL508C					
Structure (IP rating)		Natural cooling, open (IP20)			Force cooling, open (IP20)		
Close mounting		Possible (note 2)					
Environment	Ambient temperature	0 to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing) (If operating temperature is above 45°C, forced cooling will be required)					
	Ambient humidity	90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)					
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust					
	Altitude	1000m or less above sea level					
	Vibration resistance	5.9m/s2 at 10Hz to 55Hz (directions of X, Y and Z axes)					

(Note 1): Temporary setting, depending on the actual motor will make design changes with the situation.

(Note 2): When the servo amplifiers are closely mounted, keep the ambient temperature within 0 to 45°C, or use them with 75% or less of the effective load ratio.

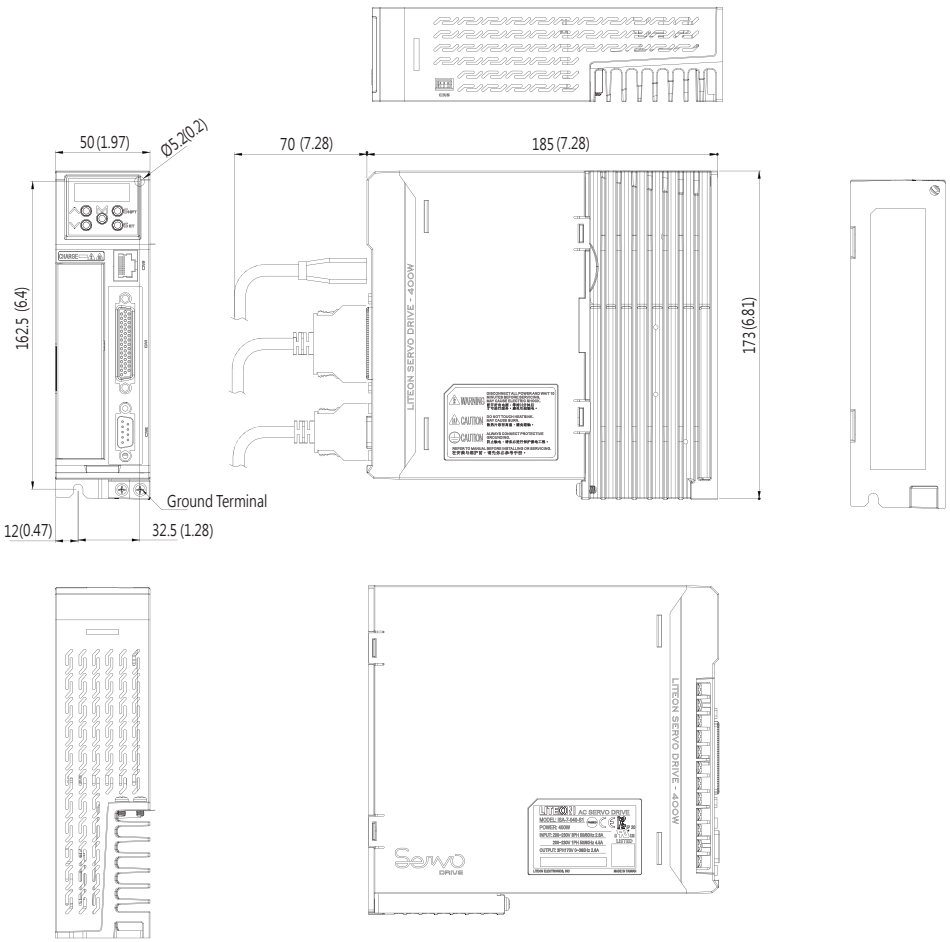
Item	Specification						
Servo motors model	100W	200W	400W	750W	1kW	1.5kW	2kW
	01	02	04	08	10	15	20
Rated output power (kW) (Note 1)	0.1	0.2	0.4	0.75	1.0	1.5	2.0
Rated torque (N-m)	0.32	0.64	1.27	2.39	4.77	7.16	9.55
Maximum torque (N-m)	1.12	1.91	3.82	7.1	8.78	13.32	19.55
Rated current (A)	0.9	1.7	2.7	4.3	5.6	9.9	12.2
Maximum current (A)	3.2	5.1	8.1	12.9	14.3	21.5	28.6
Rated speed (r/min)	3000	3000		3000	2000		
Maximum speed (r/min)	6000	5000		4500	3000		
Power rating (kW/s)	7.6	13.6	22.1	48.2	38.7	40.5	90.5
Mechanical time constant (ms)	1.69	1.12	0.67	0.53	1.21	0.81	0.64
Rotor moment of inertia (× 10-4kg.m2)	0.074	0.17	0.28	0.89	2.66	2.79	4.45
Armature resistance (Ohm)	0.45	0.65	0.93	0.42	0.899	0.22	0.15
Armature inductance (mH)	3.5	5.1	7.38	3.55	5.7	1.91	1.5
Electrical time constant (ms)	5.5	6.8	7.96	8.36	6.33	9.6	11.3
Torque constant-KT (N-m/A)	0.6	0.55	0.5	0.48	0.75	0.47	0.53
Voltage constant-KE (mV/(r/min))	16	17	18.5	17.2	24.4	17.6	19.2
Insulation class	Class A (UL) · Class B (CE)						
Insulation resistance	100MΩ , DC 500V						
Insulation strength	AC 1500V , 60 sec						
Max. radial shaft load (N)	68	245	245	392	490	490	490
Max. thrust shaft load (N)	58	98	98	147	196	196	196
Power rating (kW/s) With brake	13.5	17	22	48.2	37.8	82	82
Power rating (ms) with brake	1.87	1.37	0.75	0.65	1.23	0.66	0.66
Rotor moment of inertia (× 10-4kg.m2) With brake	0.082	0.21	0.31	1.18	2.66	4.99	4.99
Brake rated voltage (V)	VDC24V	VDC24V	VDC24V	VDC24V	VDC24V	VDC24V	VDC24V
Rated current brake (A)	0.25	0.3	0.3	0.4	1.0	1.0	1.0

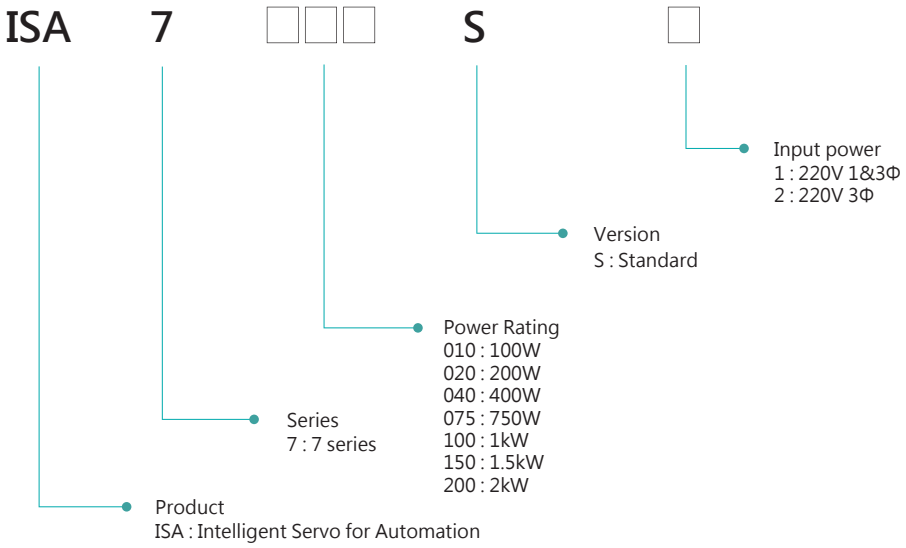
08 / Servo Motors Specification

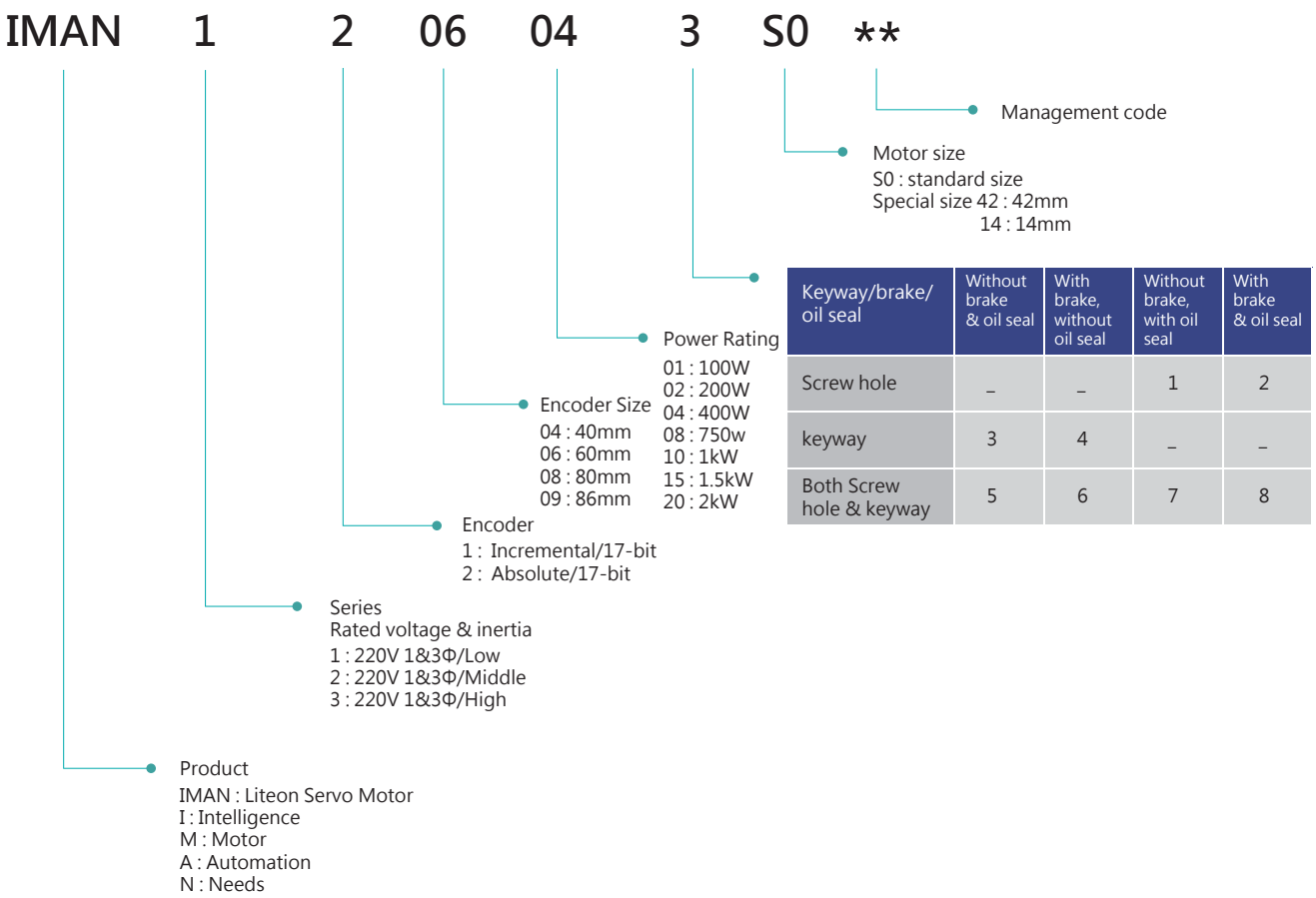
Item	Specification						
Servo motors model	100W	200W	400W	750W	1kW	1.5kW	2kW
	01	02	04	08	10	15	20
Brake release time [ms (Max)]	20	15	15	20	10	10	10
Brake pull-in time [ms (Max)]	35	50	50	70	70	70	70
Weight-without brake (kg)	0.5	0.9	1.3	3.0	3.9	4.6	6.2
Weight-with brake (kg)	0.8	1.4	1.8	3.8	5.6	5.6	7.2
Seismic Level	Class B						
Operating temperature (°C)	0°C ~ 40°C						
Storage temperature (°C)	-20°C ~ 65°C						
Operating humidity	20 ~ 90%RH (non-condensing)						
Storage humidity	20 ~ 85%RH (non-condensing)						
Vibration capacity	2.5G						
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft(an oil seal model is used))						
Approvals	CE、UL						

(N o t e 1) : We reserve the rights to changes prior to notification.

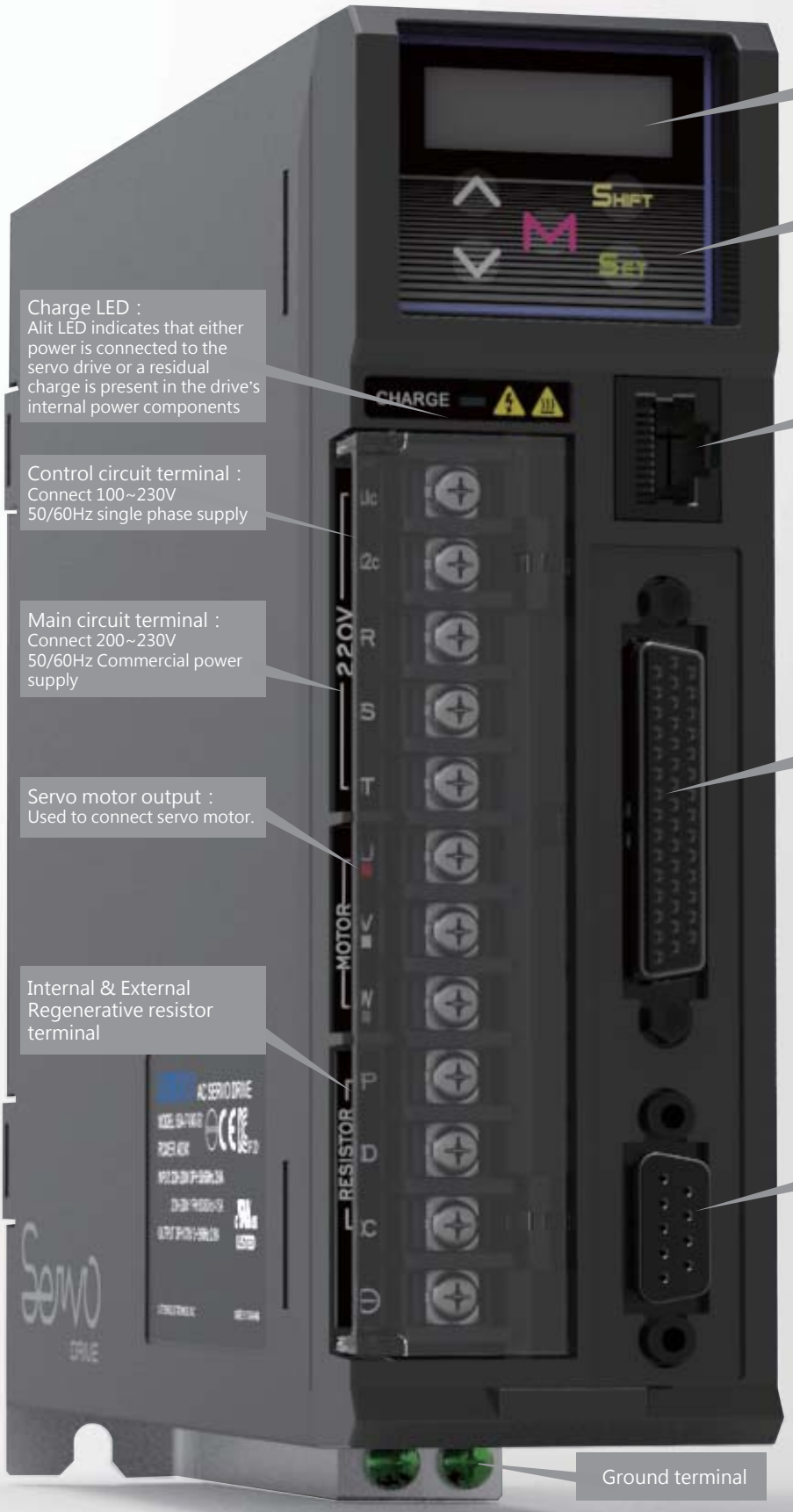
09 / ISA-7 Servo Drive Dimensions







Keyway/brake/ oil seal	Without brake & oil seal	With brake, without oil seal	Without brake, with oil seal	With brake & oil seal
Screw hole	_	_	1	2
keyway	3	4	_	_
Both Screw hole & keyway	5	6	7	8



LED Display：
The 5 digit, 7segment LED Displays

Operation Panel

Charge LED：
Alit LED indicates that either power is connected to the servo drive or a residual charge is present in the drive's internal power components

Serial communication port：
Used to connect HMI PLC. Controller RS-232/RS-485 serial communication

Control circuit terminal：
Connect 100~230V
50/60Hz single phase supply

Main circuit terminal：
Connect 200~230V
50/60Hz Commercial power supply

I/O Interface：
Used to connect a PC Based or PLC controller

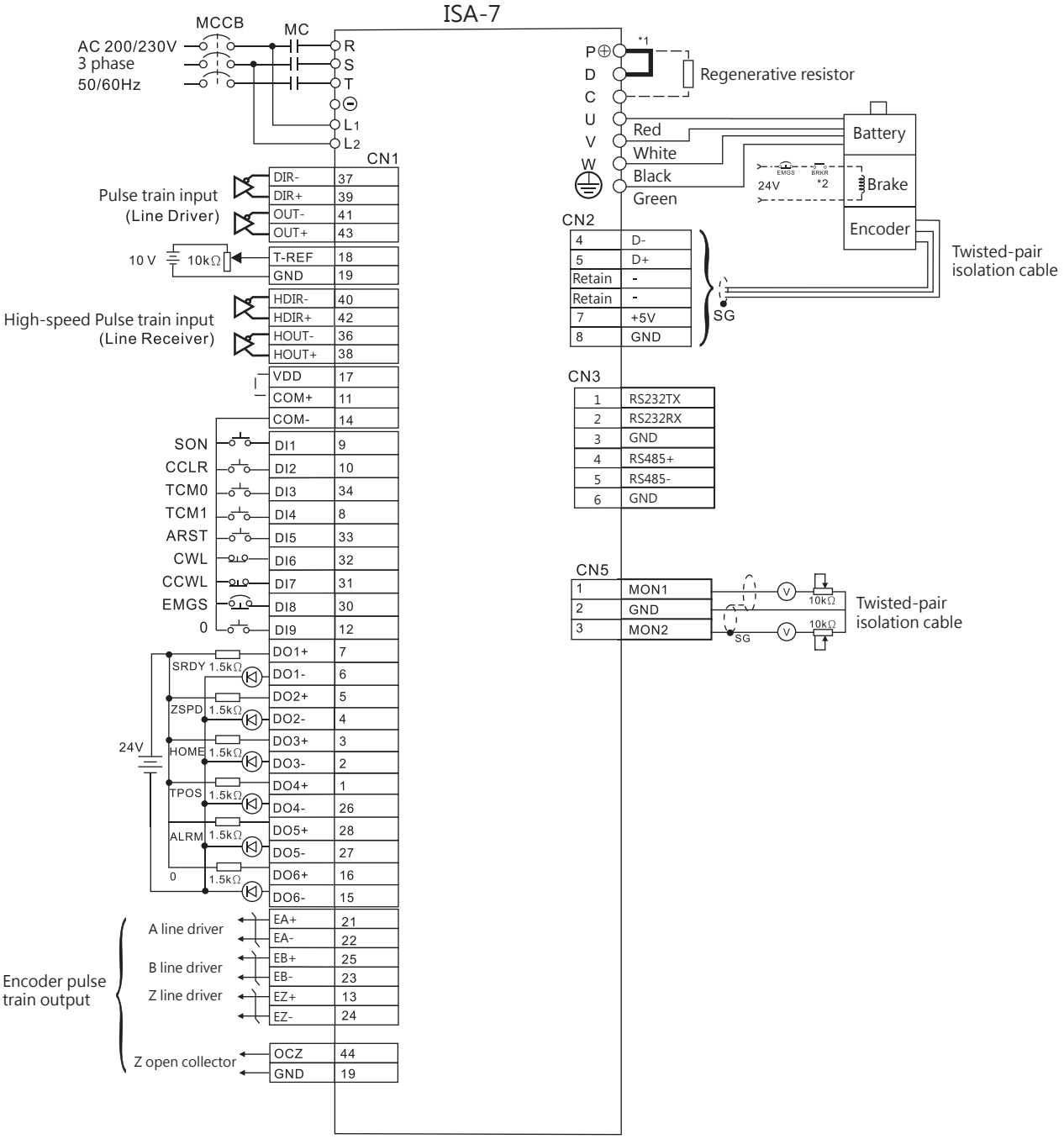
Servo motor output：
Used to connect servo motor.

Internal & External Regenerative resistor terminal

Motor encoder interface

Ground terminal

* Refer to the user manual for more details.

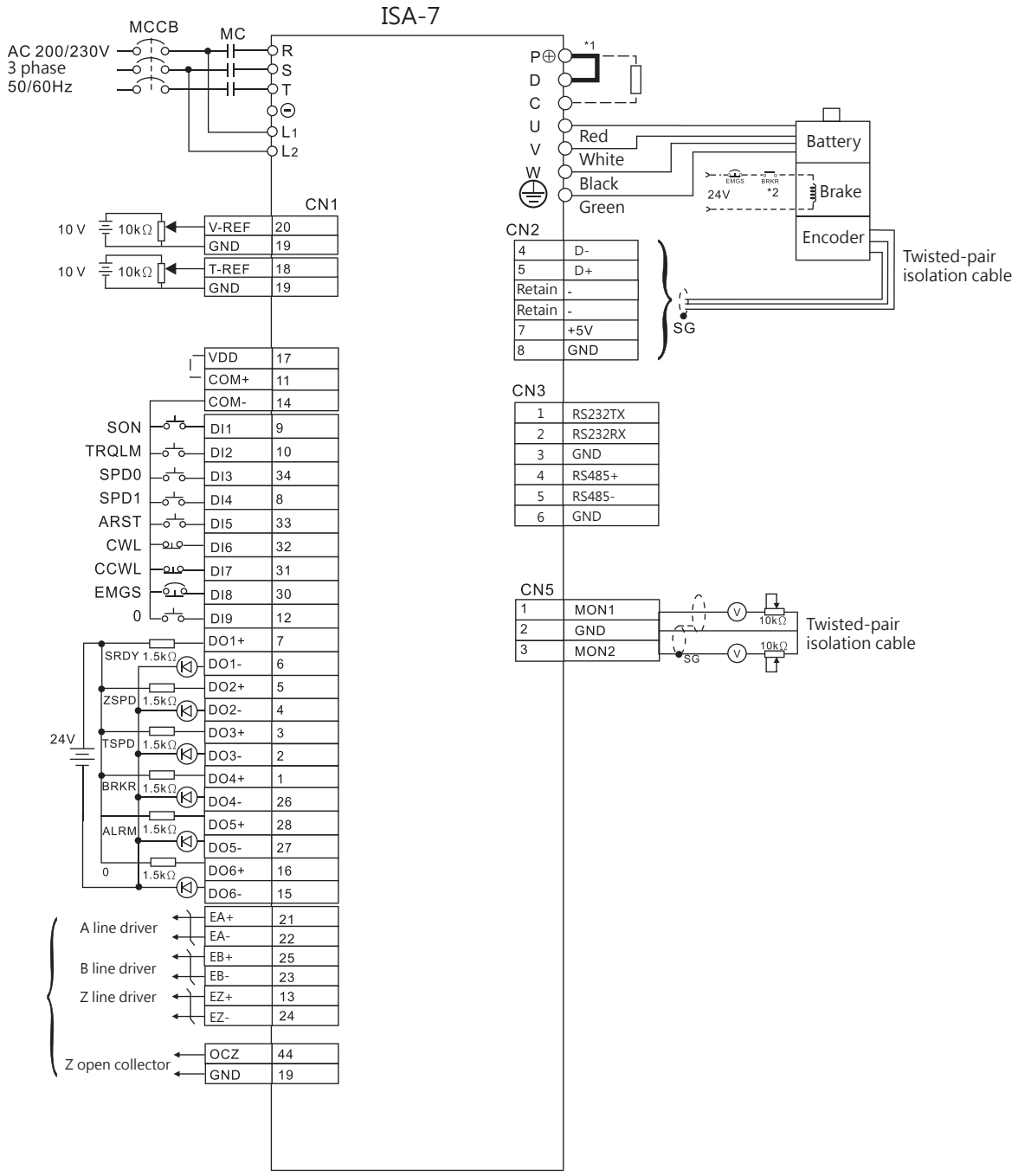


Notes :

*1. Regenerative resistors are not built-in in models below 200W.

*2. The braking wiring does not have polarity.

⚠ The ground of the servo must be connected to controller's ground.



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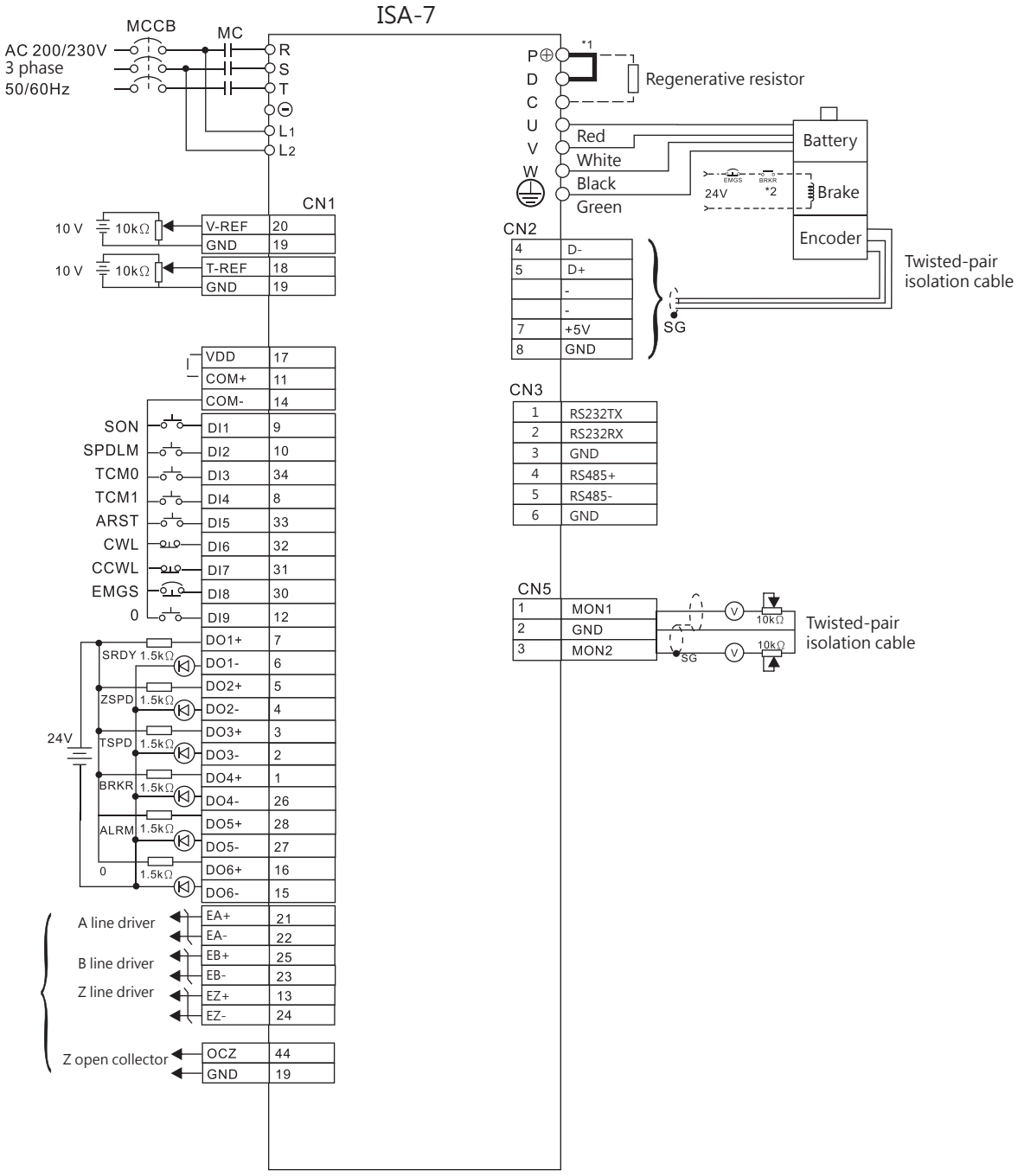


Notes :

*1. Regenerative resistors are not built-in in models below 200W.

*2. The braking wiring does not have polarity.

Series	EVO6000	EVO6800	EVO8000
Power range	200V : 0.2 - 2.2 kW (0.25 - 3 HP) 400V : 0.4 - 3.7 kW (0.5 - 5 HP)	400V : 0.4 - 315 kW * (0.5 - 420 HP)* 200V : 0.4 - 22 kW * (0.5 - 30 HP)*	400V : 0.75 - 30 kW (1 - 40 HP)
Voltage range	VAC 1-phase 200 - 240 VAC 3-phase 380 - 480	VAC 3-phase 380 - 480 VAC 3-phase 200 - 240	VAC 3-phase 380 - 480
Certification	UL / cUL / CE	UL / cUL / CE	UL / cUL / CE
IP level	IP20	IP20 and IP21 with NEMA1 kit	IP20 and IP21 with NEMA1 kit
Control mode	a. V/F b. SVVC (Sensorless Voltage Vector Control)	a. V/F b. SVVC (Sensorless Voltage Vector Control)	a. V/F b. V/F+PG c. closed-loop/open-loop current vector control for asynchronous/synchronous motor
Communication options	CANopen/ Profibus-DP*/ Option card	CANopen/ Profibus-DP*/ EtherNet*/IP option card	CANopen/ Profibus-DP*/ EtherNet*/IP option card
LED Keypad	standard built-in 7-seg.*4	standard built-in 7-seg.*5	standard built-in 7-seg.*5
Other design	1. Remote keypad 2. Copy unit 3. Din rail	1. LCD unit 2. Copy unit	1. LCD unit 2. Copy unit
Applications	Fan/Pump Food process machine Feeder Plastic Machines Conveyors Textile machines etc.	FAN/Pump Machine-tools Compressors Feeder Presses Plastic Machines Conveyors Ceramic Machines Packing Machines Bagging Machines Labeling Machines Textile machines etc.	Printing Machines FAN/Pump Machine-tools Cutters Winders Packaging Machinery Platics Machines Lifting Machines Material handling Labeling Machines Compressors Mixers Kneaders Textile machines etc.

* : Under development.

08/ EazyLynk

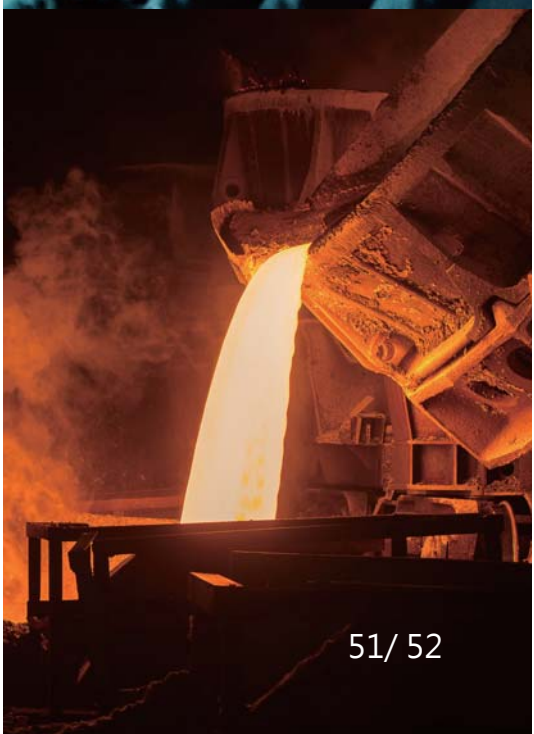
Human Machine Interface

01 / Features

- High resolution wide screen LCD, 65536 colors.
- ARM9 based CPU, 8M+ 128 MB flash memory and 128KB battery backup memory
- Large memory for project, historical and alarm data saving.
- Communication interfaces: RS232/422/485, Ethernet, and USB port.

Improving For You

- Can communicate with 1 or multiple devices directly or indirectly, build-in transparent connection function.
- Real-time clock.
- IP65 industrial protection.
- Powerful and friendly PC edit software EZ Studio.



• Factory & Machine Automation

The HMI is booming in the factory and machine automation field. With the advantage of HMI, the manager can collect data and analysis information to help them do the right decision easily and faster.

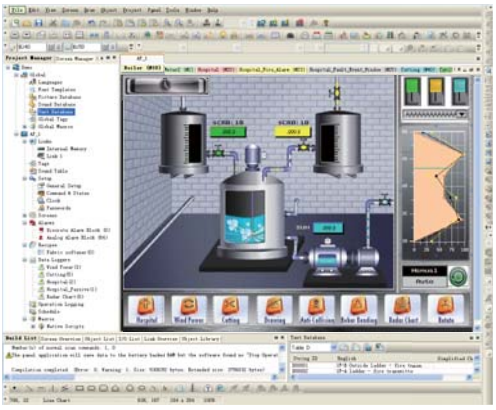
In machine automation, HMI provide an efficient and precise way of manufacturing. Implement HMI in machine automation can provide operators assistance and greatly decrease the need for human sensory as well as mental fatigue. In a production line of machines, the HMI takes the helm of the automation process and helps you manage the whole system from top down. It not only saving your time but also raising your competitiveness.

• Building Automation

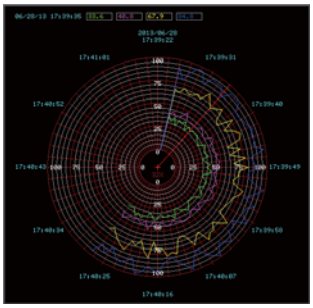
The HMI plays a very important role in achieving green building automation. HMI provides an economic and easy answer for those who need integrating and systematic solutions. In fact, elevators, power system management, temperature, humid, lighting control and alarm systems can be integrated into an intelligent solution through HMI. You can monitor, manage and record the status automatically and easily. Via EtherNet, you can supervise and remote the equipment even if you are not at home.

02 / EZ Studio Features

EZ Studio is proven in many application fields and is an easy to use integrated development tool featuring solution-oriented screen objects, high-end vector graphics, Windows fonts for multi-language applications, recipes, alarms, data loggers and operation logging. EZ Studio also includes online/offline simulation and other utility programs such as Data Transfer Helper (DTH).

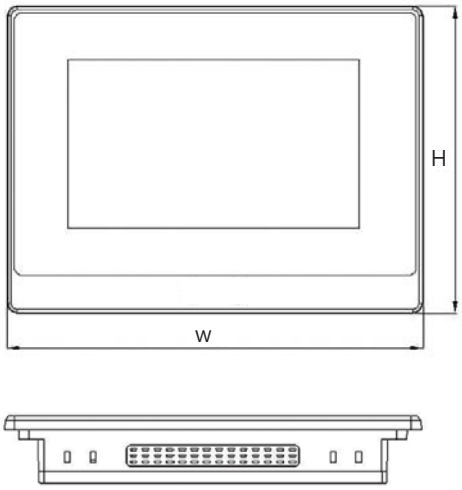


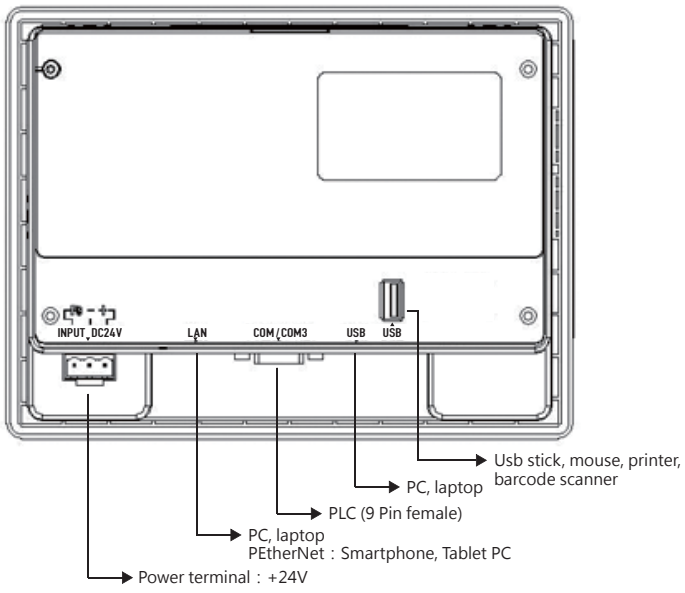
- Over 300 communication drivers allowing EazyLynk to connect with all types of equipment easily.
- VNC server function.
- Allows users to switch multi-language UI dynamically, with Unicode and multilingual screen text supported.
- Password protection of designs, macros and upload/download operations.
- Runtime data can be downloaded via serial port, Ethernet and USB.
- Support USB memory sticks for trouble-free application updates.
- Provides index registers for modifying device addresses at runtime.
- Operation log helps the review and investigation of important events.



03 / Dimensions

Model Name	EZ040-WGA	EZ070-WGA	EZ100-WGA
Dimension WxHxD (mm)	130.0 x 106.2 x 39.0	203.5 x 149.0 x 33	270.1 x 212.1 x 42.5
Cutout Dimension WxH (mm)	119.0 x 93.0	192.0 x 138.5	259.5 x 201.5
Net Weight (kg)	0.35	0.65	1.1

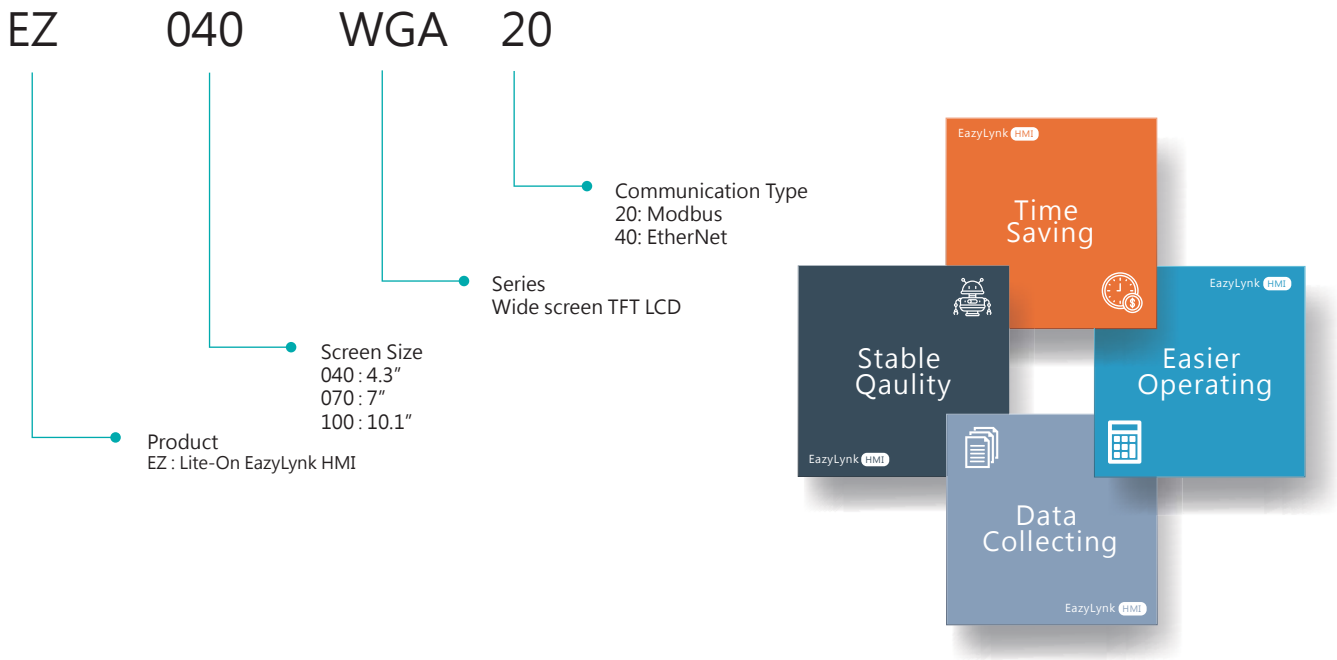




04 / Hardware

Model Name		EZ040-WGA	EZ070-WGA	EZ100-WGA
Sub-models		20 / 40	20 / 40	20 / 40
Display	Size	4.3" diagonal	7.0" diagonal	10.1" diagonal
	Max. Resolution	480*272	800*480	1024*600
	Type	TFT LCD with LED Backlight		
	Max. Colors	16-bit		
	Backlight Life (hr)	20000		
	Display Contrast	500		
	Luminance (cd/m2)	250	250	150
Touch Panel		4-wire Analog Touch Panel		
CPU		RISC ARM9 32Bit		
Backup SRAM		128KB		
Working Memory		32MB		
Built-in Storage Memory		8MB	8MB+128MB (NAND Flash)	
Real-Time Clock(RTC)		YES		
Communication Interface	USB Client	YES (USB 2.0)		
	USB Host	YES (USB 1.1)		
	Serial (Com1)	RS232/422/485		
	Serial (Com3)	RS485		
	Ethernet	Sub-Model 40: YES	Sub-Model 40: YES	Sub-Model 40: YES
Power	Supply Voltage	24VDC±10% Isolated		
	Consumption	20W		
Environment	Operating Temperature	0°~50°		
	Storage Temperature	-20°~60°		
	Relative Humidity	10%~90%		
	Shock (operation)	10 ~ 55Hz(X,Y,Z direction, 1G, 30 Mins shock testing)		
	EMI	FCC Part 15 A Class A		
	CE	EN61000-6-2 ; EN61000-6-4		
	Ingress Protection	IP65		
	Cooling	Natural Cooling		

05 / Model Definition



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