

L7 Drive

Designing your future with

LS Mecapion L7 Series.

Your reasonable selection for total solution

The wide range of LS Mecapion line up will satisfy your requirements for the motion system through optimal application and use of the products.

With the excellent functionality, high precision and high-speed control, LS Mecapion AC servo system is customer-friendly and cost-effective.



Moving towards tomorrow 

The Best Automation **Brand** in Korea The World Class Leader in Automation System

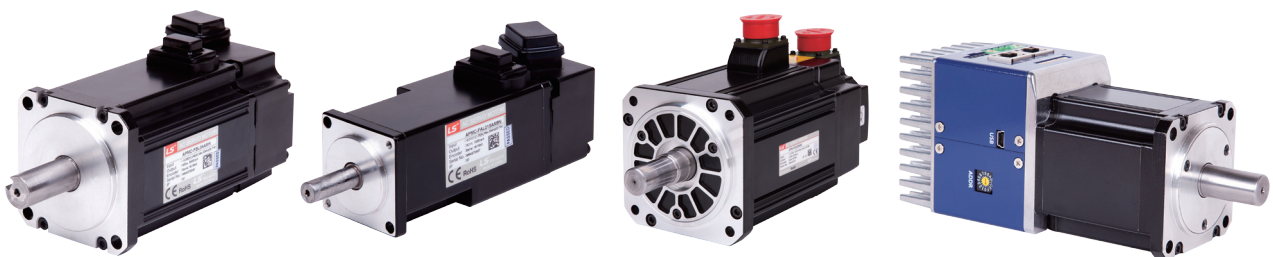
LS Mecapion has supplied not only the servo drives and servo motors of high quality and high efficiency but also rotary encoders and actuators for the Korean and Global Industries for the past 20 years.

We are making efforts to provide a variety of products to our customers all over the world to satisfy their requirements. We have provided cutting-edge technologies that consider the needs of our customers by adopting the best functionality as well as innovative ideas.

We have accumulated a deep and wide range of experiences in the field of the control system for years and are venturing into new possibilities to provide the technologies of a higher level to our customers.

We hope that you don't miss the opportunity
to use the proven, **world-class products**
from **LS Mecapion** to improve the performance and
value of your equipment.

We hope that we can provide the best services and partnerships for our customers by utilizing our expertise and technologies.



L7 SERIES SYSTEM

Features of L7 Drive

Compact Size

Capacity	400W 44% Down Size			1kW 46% Down Size			3.5kW 62% Down Size		
Series	L7	VS	Competitor	L7	VS	Competitor	L7	VS	Competitor
L [mm]	38	80	40	58	88	60	88	137	90
W [mm]	169	187	168	169	210	168	169	256	168
H [mm]	173	132	170	198	195	195	198	225	195

Compared with VS

Slim up to 52% More

Compared with a representative competitor

Slim up to 5% More

Ultra-thin 38 mm width (400 W)

Its small footprint allows flexible installation, reducing the size of the equipment.

400W



1kW



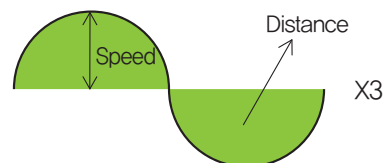
3.5kW



Easy to USE

The automatic inertia detection function for easier gain adjustment.

- Fast and accurate inertia detection
- Off-line tuning
- Parameters for inertia detection (speed and distance) provided



Encoder based on two-way high-speed serial communication

- Automatic recognition for motors and encoders
- BiSS protocol
- Wire-saving system (7-line) for encoder, resistant to noise

BiSS
INTERFACE

Support for various motors and encoders [L7NH and L7P Series]

- Support for standard BiSS encoders as well as other encoders

Motor	Encoder
Rotary	Quadrature / BiSS Interface
DD	Tamagawa serial absolute
Linear	EnDat 2.2 / Resolver

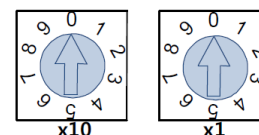
Features of L7 Drive

● Sufficient input/output contacts and various functions

- L7S: Digital input contacts: 10, output contacts: 8 / Analog input contacts: 2 and output contacts: 2
- L7N: Digital input contacts: 6, output contacts: 4 / Analog input contacts: 2 and output contacts: 2
- L7NH: Digital input contacts: 8, output contacts: 4 / Analog input contacts: 1 and output contacts: 2
- L7P: Digital input contacts: 16, output contacts: 8 / Analog input contacts: 2 and output contacts: 2
- PEGASUS: Digital input contacts: 4, output contacts: 2 / Analog input contacts: 1 and output contacts: 1
- Flexible assignment of input/output signals by parameters and contact setting based on the input/output contact type (N.O / N.C contacts)

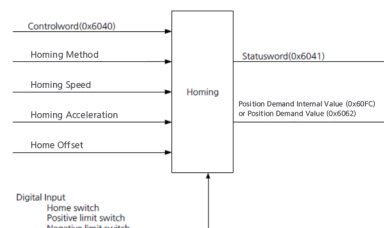
● Using the rotary switch to configure the drive node address [L7NH, L7P, and PEGASUS]

- Using the rotary switch to configure the drive node address conveniently
- L7NH: 0–99, L7P: 0–31, PEGASUS: 0–15



● Various homing functions [L7NH, L7P, and PEGASUS]

- The drive provides the homing function.
- You can specify the speed, acceleration, offset, and homing method.



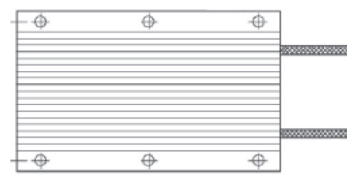
● Easy firmware upgrade [L7NH, L7P, and PEGASUS]

- Supporting the USB OTG function to allow firmware download with a USB memory
- Useful where space is limited or environmentally unfavorable



● Built-in regenerative braking resistance in the drive

- Drive installed inside to improve user convenience (100 W – 3.5 kW)
- Providing the connection for external installation
- Enhanced protection algorithm



● Plug-in type power connector

- Expanded to 100 W – 3.5 kW for improved wiring convenience



L7 SERIES SYSTEM

Features of L7 Drive

■ Reliability

● Main capacitor quality improved

- Long-life type capacitor applied (2.5 times improvement)

● Convenient DC reactor installable

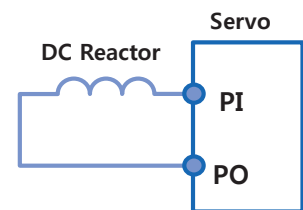
- Power connection to DC-link
- Easier wiring and smaller size compared to 3-phase AC reactor
- Connection for DC input (PI, N)

● Stable turn-off function based on the detection of the control power turn-off

● CE certification and RoHS certification

● Enhanced protection function

- Triple protection function for the protection of power module
- Detection of the main power phase loss
- Temperature sensor installed in the drive and motor for the prevention of overheat
- Alarm code grouping and dedicated output contacts (ALO0, ALO1, ALO2)
- Warning function (Digital output WARN)



■ High Performance

● Serial encoder of high resolution (with Biss C)

- Stability improved during precision position control and low-speed operation

● Stable low-speed properties based on precise speed measurement

- Stable speed measurement at low speed

● Calculation speed improved [L7NH, L7P, and PEGASUS]

- FPU (Floating Point Unit) for reliable precision calculation
- 16 kHz switching frequency for precision current control
- 32 bit operation for increased synchronous command processing rate (MIPS)

● Dedicated PC program

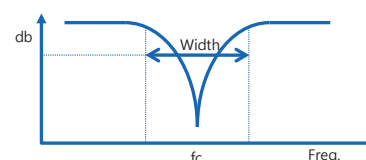
- L7S, and L7N: LIVE-I.C.E / L7NH, L7P, and PEGASUS: Drive CM
- PC program for shortened equipment tuning time and debugging
- Monitoring for speed, torque, current feedback, position values and positional error values and alarm occurrence time

Features of L7 Drive

Intelligent Control

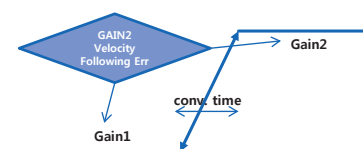
● Notch filter for resonance suppression

- 4-step notch filter
- 2-step vibration suppression filter at the load position
- FFT function for real-time frequency analysis



● Various gain switching modes for improved control performance

- P/PI auto-switching function to reduce overshooting during acceleration/deceleration
- Various Gain1 ↔ Gain2 switching modes



● Various dynamic brake control modes

- Configuring the operation mode at stop and after stop

Network Based – EtherCAT Network Type

● A wide range of products

- L7N: EtherCAT communication command type
- L7NH: All-in-one EtherCAT communication command type
- PEGASUS: Motor drive-integrated EtherCAT communication command type

● High performance

- Synchronization mechanism of high speed, high accuracy, and real-time communication
- Various Gain1 ↔ Gain2 switching modes

● Open network

- An international standard network with 1,600 members over the world

● Low cost

- Standard Ethernet connector and cabling supported and slave-master implemented at a low cost

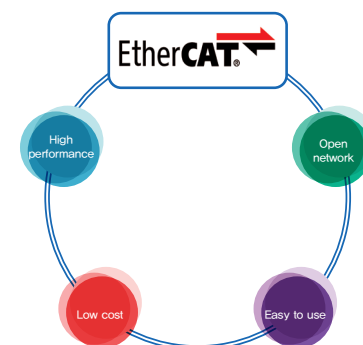
● Easy to use

- Various topology types supported and easy diagnosis for devices

● L7 drive with a built-in EtherCAT interface

- 100BASE-TX (100 Mbps) real-time communication
- CiA402 (IEC61800-7) drive profile supported
- Connection with various masters and slaves
- Up to 100 m connection between nodes
- Precision synchronization mechanism of 1 us or less

Field Bus



L7 SERIES SYSTEM

Features of L7 Drive

● Various operation modes

- L7N: Using the EtherCAT communication to support Cyclic (P/S/T) and Profile (P/S/T) modes
- L7NH and PEGASUS: Using the EtherCAT communication to support Cyclic & Profile (P/S/T) modes, EOE, COE, and FOE

● Safe torque off function

- Torque-off forced by hardware signals without involvement of the drive CPU and FPGA (ASIC); international standards adopted (IEC61508)

● Flexible I/O setup

- Mapping and level (A/B) setup by parameters

● High-speed position capture

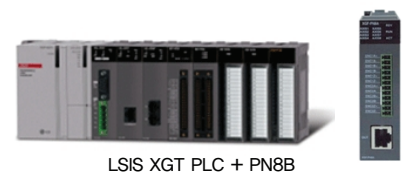
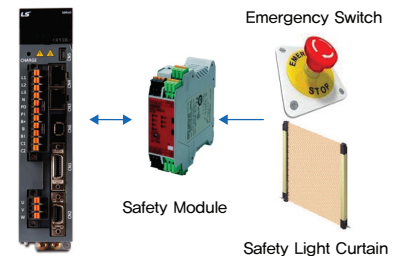
- Touch probe function (PROBE1 and PROBE2)

● Adjustment function linked with XGT series from LSIS

- Inertia detection, position/speed gain manual adjustment, gain switching setup, etc.

● EtherCAT drive compatibility

- Verified by CTT (Conformance Test Tool)



- Monitoring function

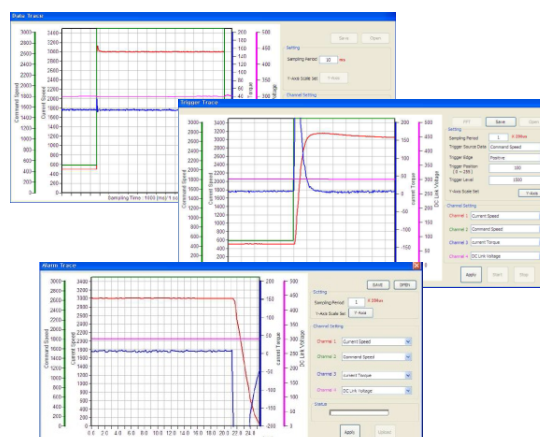
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- Setup function

- Using the PC to read and write parameters
- Manual JOG function: Manual jog speed adjustment and forward/reverse test
- Automatic gain tuning
- Alarm history and alarm reset

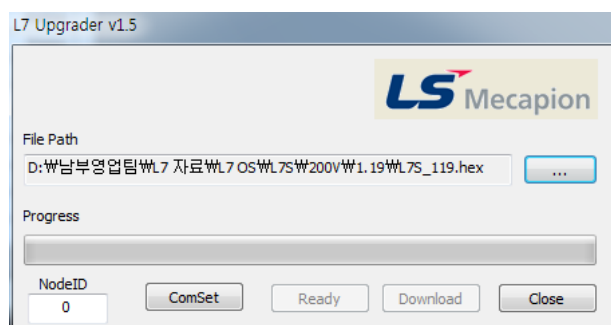
- Graph function

- Data Trace: Graphic presentation of pre-defined channels in real time
- Trigger Monitoring: Graphic presentation by the channel and trigger settings
- Alarm Trace: Graphic presentation of alarm history for channels



- Download software

- OS Download: Firmware version upgrade software



L7 SERIES SYSTEM

Servo Setup Software

Drive CM : L7NH, L7P and PEGASUS Series

I/O CONFIGURATION

- Setting the output function and its signal level for I/O input contacts and I/O output signal pins
- Limiting the analog input torque and using the analogue voltage to override the speed
- Analog monitoring output for the gain tuning or internal state variables of the drive



Setup function

- Configuring the data structure including parameters, state variables, commands, etc. inside the drive
- Using Manual Jog and Program Jog to carry out the test
- Using Offline Auto Tuning for one-touch adjustment
- Customer convenience functions such as PTP movement, homing, and touch probe

The figure displays two screenshots from the Servo Setup Software. The left screenshot shows a 'Parameter Configuration' window with multiple tabs for Index 0 through Index 7, allowing users to set various parameters like distance, velocity, acceleration, and deceleration. The right screenshot shows an 'INDEXER TEST' window with a grid of buttons for testing different indexer functions, including ON, OFF, and various pulse and position settings.

Monitoring function

- Implementation of 4-channel tracer or trigger monitor
- Performing various operations, including Manual Jog, Program Jog, PTP Move, etc., and monitoring the operation state
- Monitoring Zoom or Pan / Mouse Wheel / Rollover or Cursor

The figure displays three screenshots from the Servo Setup Software. The top screenshot shows an 'AUTO-TUNING' window with options for 'On-Line Tuning' and 'Off-Line Tuning', including settings for tuning direction and distance. The middle screenshot shows a 'MANUAL JOG' window with a speed dial and buttons for 'Read', 'Reverse', 'Forward', 'Drive Enable', and 'Drive Disable'. The bottom screenshot shows a 'HOMING' window with settings for homing method, search speed, and deceleration, along with buttons for 'Homing Done', 'Homing', and 'Stop'.

Indexer setup [L7P only]

- Using Index Edit to enter/configure the index parameters
- Using Indexer Test to configure the operation and provide testing function

INDEX

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Integrated Servo System

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L7 SERIES SYSTEM

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EtherCAT Communication Command Type

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L7NH Series

All-in-one EtherCAT Communication Command Type

- Servo Drive Designation _31
- Product Feature _37
- External Dimensions _39



L7P Series

Indexer Function Type

- Servo Drive Designation _45
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General Pulse Type, Analog Command Type

L7S Series



Servo Drive Designation

L7	S	A	004	B	AA
Model Name	Communication	Input Power Supply	Capacity	Encoder Type	Option
Servo Series	S : Standard I/O Type	A : 200VAC B : 400VAC	001 : 100W 002 : 200W 004 : 400W 008 : 750W 010 : 1.0kW 020 : 2.0kW 035 : 3.5kW 050 : 5.0kW 075 : 7.5kW 150 : 15.0kW	A : Quadrature (Pulse Type) B : Serial (Communication Type)	Exclusive Option Code

* Range
 · 200V : 0.1kW~5.0kW
 · 400V : 1.0kW~15kW

L7 SERIES SYSTEM

L7S Series

Characteristic

● Easy to USE

- Easy Gain Tuning with Automatic Inertia Estimating Function
- Easy Setting Built-in Panel Operator
- Many I/O Contacts and Various Functions
(Digital Input: 10 contacts, Digital Output: 8 contacts / Analog input, output : 2 contacts)]

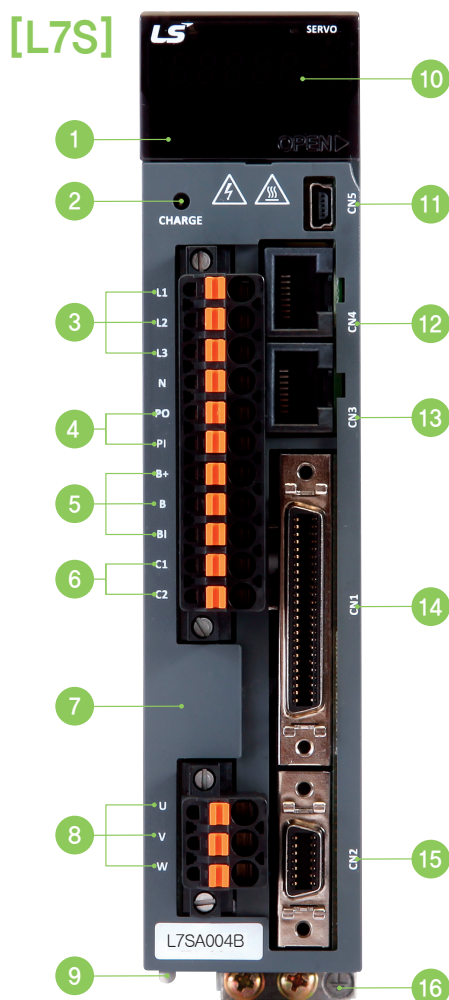
● Reliability for Protection Function

- CE, RoHS Certified
- Drive Protection Function and Warning Function

● High Response for Precision Control

- High Resolutions Serial type Encoder(19Bit, BiSS)
- Improved Speed Response($\approx 1\text{KHz}$) Frequency

Identifying the Part of L7S



- 1 Operation keys (Mode, Up, Down, Set)
- 2 Charge Lamp
- 3 Main Power Connector (L1, L2, L3)
- 4 DC Reactor Connector (PO, PI)
 - Short-Circuit when not used
- 5 Regenerative resistance connector (B+, B, BI)
 - Short-Circuit B, BI terminals when standard type
 - Use B+, B terminals when using external resistor
- 6 Control Power Connector (C1, C2)
- 7 Front Cover
- 8 Motor Power Cable Connector (U, V, W)
- 9 Heat Sink
- 10 Display
- 11 CN5 : USB Connector
- 12 CN4 : RS-422 Communication Connector
- 13 CN3 : RS-422 Communication Connector
- 14 CN1 : Control Signal Connector
- 15 CN2 : Encoder Signal Connector
- 16 Ground

L7S Drive Combination Table

■ L7SA Incremental Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable	Power Cable					
					Quadrature Type	INC	For power	Power + Brake	Brake			
3,000	5,000	□40	SAR3A	L7SA001A	* 2,048 P/R	APCS-E□□□AS	APCS-P□□□GS		APCS-P□□□KB			
		□40	SAR5A	L7SA001A								
		□40	SA01A	L7SA001A								
		□40	SA015A	L7SA002A								
		□60	SB01A	L7SA002A								
		□60	SB02A	L7SA002A								
		□60	SB04A	L7SA004A								
		□80	SC04A	L7SA004A								
		□80	SC06A	L7SA008A								
		□80	SC08A	L7SA008A								
		□80	SC10A	L7SA010A								
		□130	SE09A	L7SA008A								
		□130	SE15A	L7SA020A								
		□130	SE22A	L7SA020A								
		□130	SE30A	L7SA035A								
		□180	SF30A	L7SA035A								
□180	SF50A	L7SA050A										
2,000	3,000	□80	SC03D	L7SA004A	* 3,000 P/R	APCS-E□□□AS	APCS-P□□□GS		APCS-P□□□KB			
		□80	SC05D	L7SA008A								
		□80	SC06D	L7SA008A								
		□80	SC07D	L7SA008A								
		□130	SE06D	L7SA008A								
		□130	SE11D	L7SA010A								
		□130	SE16D	L7SA020A								
		□130	SE22D	L7SA020A								
	□180	SF22D	L7SA020A	APCS-E□□□BS		APCS-P□□□HS	APCS-P□□□NB					
	□180	LF35D	L7SA035A									
	□180	SF55D	L7SA050A									
	□220	SG22D	L7SA020A									
	3,000	□220	LG35D			L7SA035A	APCS-P□□□IS		APCS-P□□□PB	APCS-P□□□SB		
		□220	SG55D			L7SA050A						
		□130	SE05G			L7SA008A						
		□130	SE09G			L7SA010A						
1,500		3,000	□130	SE13G	L7SA020A	APCS-P□□□HS	APCS-P□□□NB					
			□130	SE17G	L7SA020A							
			□180	SF20G	L7SA035A							
			□180	LF30G	L7SA035A							
	2,700	□180	SF44G	L7SA050A	APCS-P□□□IS	APCS-P□□□PB						
		□220	SG20G	L7SA020A								
		3,000	□220	LG30G					L7SA035A	APCS-P□□□US	APCS-P□□□LB	
			□220	SG44G					L7SA050A			
1,000	2,000	□130	SE03M	L7SA004A	* 3,000 P/R	APCS-E□□□BS		APCS-P□□□HS	APCS-P□□□NB			
		□130	SE06M	L7SA008A								
		□130	SE09M	L7SA010A								
		□130	SE12M	L7SA020A								
		□180	SF12M	L7SA020A								
		□180	SF20M	L7SA035A								
	1,700	□180	LF30M	L7SA035A			APCS-P□□□IS	APCS-P□□□PB				
		□180	SF44M	L7SA050A								
	2,000	□220	SG12M	L7SA020A			APCS-P□□□US	APCS-P□□□LB	APCS-P□□□SB			
		□220	SG20M	L7SA035A								
		1,700	□220	LG30M						L7SA035A		
			□220	SG44M						L7SA050A		
	3,000	3,500	□60	HB01A			L7SA002A	* 1,024 P/R		APCS-E□□□AS	APCS-P□□□GS	
			□60	HB02A			L7SA002A					
			□60	HB04A			L7SA004A					
			□130	HE09A			L7SA008A					
* 2,048 P/R			□130	HE15A	L7SA020A	APCS-E□□□BS	APCS-P□□□HS					
			□130	HE30A	L7SA050A							
			□130	HE30A	L7SA050A							
			□130	HE30A	L7SA050A							

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7S Drive Combination Table

L7SA Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable		Power Cable					
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake			
3,000	5,000	□40	FALR5A	L7SA001B	18Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS		APCS-P□□□QS			
		□40	FAL01A	L7SA001B									
		□40	FAL015A	L7SA004B									
		□60	FBL01A	L7SA001B									
		□60	FBL02A	L7SA002B									
		□60	FBL04A	L7SA004B									
		□80	FCL04A	L7SA004B									
		□80	FCL06A	L7SA008B									
		□80	FCL08A	L7SA008B									
		□80	FCL10A	L7SA010B									
		□60	FB01A	L7SA001B									
		□60	FB02A	L7SA002B									
		□60	FB04A	L7SA004B									
		□80	FC04A	L7SA004B									
		□80	FC06A	L7SA008B									
		□80	FC08A	L7SA008B									
		□80	FC10A	L7SA010B									
		□130	FE09A	L7SA010B									
		□130	FE15A	L7SA020B									
		□130	FE22A	L7SA020B									
		□130	FE30A	L7SA035B									
		□180	FF30A	L7SA035B									
		□180	FF50A	L7SA050B									
2,000	3,000	□80	FCL03D	L7SA004B	19Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS	APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□QS		
		□80	FCL05D	L7SA008B									
		□80	FCL06D	L7SA008B									
		□80	FCL07D	L7SA008B									
		□80	FC03D	L7SA004B									
		□80	FC05D	L7SA008B									
		□80	FC06D	L7SA008B									
		□80	FC07D	L7SA008B									
		□130	FE06D	L7SA008B									
		□130	FE11D	L7SA010B									
		□130	FE16D	L7SA020B									
		□130	FE22D	L7SA020B									
		□180	FF22D	L7SA020B									
		□180	FF35D	L7SA035B									
		□180	FF55D	L7SA050B									
	3,000	□220	FG22D	L7SA020B		APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB				
	2,700	□220	FG35D	L7SA035B									
	3,000	□220	FG55D	L7SA050B									
	1,500	3,000	□130	FE05G		L7SA008B	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB
			□130	FE09G		L7SA010B							
			□130	FE13G		L7SA020B							
			□130	FE17G		L7SA020B							
			□180	FF20G		L7SA020B							
2,700		□180	FF30G	L7SA035B	APCS-P□□□IS	APCS-P□□□PB			APCS-P□□□LB	APCS-P□□□SB			
3,000		□180	FF44G	L7SA050B									
3,000		□220	FG20G	L7SA020B									
2,700		□220	FG30G	L7SA035B									
3,000	□220	FG44G	L7SA050B	APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB						
1,000	2,000	□130	FE03M					L7SA004B	APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB
		□130	FE06M	L7SA008B									
		□130	FE09M	L7SA010B									
		□130	FE12M	L7SA020B									
		□180	FF12M	L7SA020B									
	□180	FF20M	L7SA020B	APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB						
	1,700	□180	FF30M					L7SA035B					
2,000	□220	□180	FF44M	L7SA050B	APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB					
		□220	FG12M	L7SA020B									
		□220	FG20M	L7SA020B									
	1,700	□220	FG30M	L7SA035B	APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB		APCS-P□□□SB				
2,000	□220	FG44M	L7SA050B										

L7S Drive Combination Table

L7SB Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable		Power Cable					
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake			
3,000	5,000	□130	FEP09A	L7SB010B	* 19Bit Serial / M-Turn Abs	APCS-E□□□DS	APCS-E□□□DS1	APCF-P□□□HS	APCF-P□□□NB				
		□130	FEP15A	L7SB020B									
		□130	FEP22A	L7SB035B									
		□130	FEP30A	L7SB035B									
		□180	FFP30A	L7SB035B				APCF-P□□□IS	APCF-P□□□PB				
		□180	FFP50A	L7SB050B				APCF-P□□□JS	APCF-P□□□LB				
2,000	3,000	□130	FEP06D	L7SB010B									
		□130	FEP11D	L7SB010B									
		□130	FEP16D	L7SB020B									
		□130	FEP22D	L7SB020B									
		□180	FFP22D	L7SB020B									
		□180	FFP35D	L7SB035B									
		□180	FFP55D	L7SB050B									
	2,500	□180	FFP75D	L7SB075B									
	3,000	□220	FGP22D	L7SB020B						APCF-P□□□IS		APCF-P□□□SB	
		□220	FGP35D	L7SB035B									
		□220	FGP55D	L7SB050B									
		□220	FGP75D	L7SB075B						APCF-P□□□JS			
		□220	FGP110D	L7SB150B						APCF-P□□□MS			
	1,500	3,000	□130	FEP05G				L7SB010B					
□130			FEP09G	L7SB010B									
□130			FEP13G	L7SB020B						APCF-P□□□HS	APCF-P□□□NB		
□130			FEP17G	L7SB020B									
□180			FFP20G	L7SB020B									
2,700		□180	FFP30G	L7SB035B						APCF-P□□□IS	APCF-P□□□PB		
3,000		□180	FFP44G	L7SB050B									
2,500		□180	FFP60G	L7SB075B						APCF-P□□□JS	APCF-P□□□LB		
2,200		□180	FFP75G	L7SB075B						APCF-P□□□MS			
3,000		□220	FGP20G	L7SB020B						APCF-P□□□IS			APCF-P□□□SB
2,700		□220	FGP30G	L7SB035B									
3,000		□220	FGP44G	L7SB050B						APCF-P□□□JS			
2,500		□220	FGP60G	L7SB075B									
		□220	FGP85G	L7SB150B									
		□220	FGP110G	L7SB150B						APCF-P□□□MS			
2,000		□220	FGP150G	L7SB150B									
1,000		2,000	□130	FEP03M				L7SB010B					
			□130	FEP06M				L7SB010B					
	□130		FEP09M	L7SB010B						APCF-P□□□HS	APCF-P□□□NB		
	□130		FEP12M	L7SB020B									
	□180		FFP12M	L7SB020B						APCF-P□□□IS	APCF-P□□□PB		
	□180		FFP20M	L7SB020B									
	1,700	□180	FFP30M	L7SB035B						APCF-P□□□JS	APCF-P□□□LB		
	2,000	□180	FFP44M	L7SB050B									
		□220	FGP12M	L7SB020B						APCF-P□□□IS		APCF-P□□□SB	
		□220	FGP20M	L7SB020B									
		□220	FGP30M	L7SB050B						APCF-P□□□JS			
		□220	FGP44M	L7SB050B									
		□220	FGP60M	L7SB075B						APCF-P□□□MS			

L7 SERIES SYSTEM

L7SA Drive Product Features

Item		Type Name	L7SA001□	L7SA002□	L7SA004□	L7SA008□	L7SA010□	L7SA020□	L7SA035□	L7SA050□
Input Power	Main Power Supply		3 Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
	Control Power Supply		Single Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]							
Rated Current[A]			1.4	1.7	3.0	5.2	6.75	13.5	16.7	32
Peak Current[A]			4.2	5.1	9.0	15.6	20.25	40.5	50.1	96
Encoder Type			Quad. Type Incremental Line Driver Max 6000 [P/R] Serial Type : 18bit(FA type), 19bit, 20bit(MDM series)							
Control Performance	Speed Control	Speed Control Range	Maximum 1: 5000							
		Frequency Response	Maximum 1 [kHz] or above (When using 19bit Serial Encoder)							
		Speed Command	DC -10 [V]~+10 [V] (Reverse rotation in case of negative voltage)							
		Accel/Decel Time	Straight or S-curve acceleration/deceleration (0~10,000 [ms], possible to be set by one [ms] unit)							
		Speed Variation Ratio	±0.01 [%] or lower [when load changes between 0 and 100%] ±0.1[%] or lower [temperature 25 ±10℃]							
	Position Control	Input Frequency	1[Mpps], Line Driver / 200[kpps], Open Collector							
		Input Pulse Type	Symbol + Pulse Series, CW+CCW, A/B Phase							
		Electric Gear Ratio	Four digital gear ratios can be set, selected and tuned.							
	Torque Control	Torque Command	DC -10~+10 [V] (Reverse direction torque in case of negative voltage)							
		Speed Limit	DC 0~10 [V], internal speed command within ±1[%]							
		Repetition accuracy	Within ±1[%]							
Input/Output Signal	Analog Input	Input Range	DC -10 ~ 10[V]							
		Resolution	12[bit]							
	Analog Output	Output Range	DC -10 ~ 10[V]							
		Resolution	12[bit]							
	Digital Input		Total 10 Input Channels(assignment available) SVON, SPD1, SPD2, SPD3, ALMRST, DIR, CCWLIM, CWLIM, EMG, STOP, EGEAR1, EGEAR2, PCON, GAIN2, P_CLR, T_LMT, MODE, ABS_RQ, ZCLAMP Above 19 functions can be used selectively for assignment Signal can be set as positive logic or negative logic							
	Digital Output		Total 5 Channels(assignment available), 3 Channels(set as alarm code) ALARM, READY, ZSPD, BRAKE, INPOS, TLMT, VLMT, INSPD, WARN Above 9 outputs can be used selectively for assignment Signal can be set as positive logic or negative logic							
Communication	RS422		Accessible to PC software and the RS422 server							
	USB		Status monitoring, JOG operation, parameter upload/download are available with PC Software							
Encoder			Serial BiSS encoder and quadrature encoder supported							
Encoder Output Type			Random pre-scale output through FPGA (maximum 6.4 Mpps)							
Built-in functions	Dynamic Braking		Standard built-in (activated when the servo alarm goes off or when the servo is off)							
	Regenerative Braking		Both default built-in and external installation possible							
	Display		Seven segments (5 DIGIT)							
	Setting Function		Loader (SET, MODE, UP, and [DOWN] keys)							
	Additional Function		Auto gain tuning, phase Z detection, manual JOG operation, program JOG operation, automatic analog input calibration							
		Protective Function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem							
Environment	Temperature		0 ~ 50[℃]							
	Humidity		Below 90[%]RH(avoid dew-condensation)							
	Environment		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.							

L7SB Drive Product Features

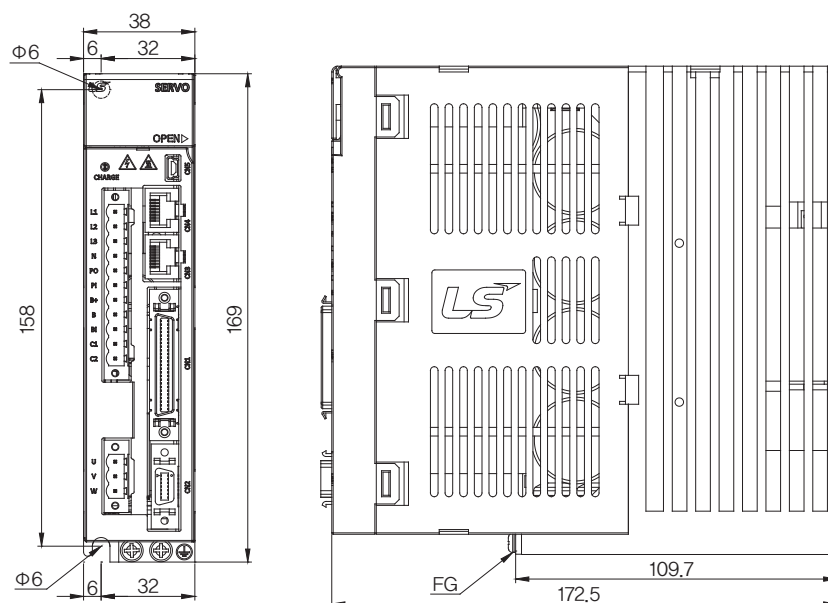
Type Name			L7SB010B	L7SB020B	L7SB035B	L7SB050B	L7SB075B	L7SB150B
Input Power	Main Power Supply		3 Phase AC380 ~ 480[V](−15 ~ +10[%]), 50 ~ 60[Hz]					
	Control Power Supply		Single Phase AC380 ~ 480[V](−15 ~ +10[%]), 50 ~ 60[Hz]					
Rated Current[A]			3.7	8	10.1	17.5	22.8	39
Peak Current[A]			11.1	24	30.3	52.5	57	97.5
Encoder Type			Quad, Type Incremental Line Driver Max 6000 [P/R] Serial Type : 18bit(FA type), 19bit, 20bit(MDM series)					
Control Performance	Speed Control	Speed Control Range	Maximum 1: 5000					
		Frequency Response	Maximum 1 [kHz] or above (when the 19-bit serial encoder is applied)					
		Speed Command	DC −10 [V]~+10 [V] (Reverse rotation in case of negative voltage)					
		Accel/Decel Time	Straight or S-curve acceleration/deceleration (0~10,000 [ms], possible to be set by one [ms] unit)					
		Speed Variation Ratio	±0.01 [%] or lower [when load changes between 0 and 100%] ±0.1[%] or lower [temperature 25 ±10℃]					
	Position Control	Input Frequency	1[Mpps], Line Driver / 200[kpps], Open Collector					
		Input Pulse Type	Symbol + pulse series, CW+CCW, A/B phase					
		Electric Gear Ratio	Four digital gear ratios can be set, selected and tuned.					
	Torque Control	Torque Command	DC −10~+10 [V] (Reverse direction torque in case of negative voltage)					
		Speed Limit	DC 0~10 [V], internal speed command within ±1[%]					
		Repetition accuracy	Within ±1[%]					
Input/Output Signal	Analog Input	Input Range	DC 0 ~ 10[V]					
		Resolution	12[bit]					
	Analog Output	Output Range	DC 0 ~ 10[V]					
		Resolution	12[bit]					
	Digital Input		A total of 10 input channels (allocable) SVON, SPD1, SPD2, SPD3, ALMRST, DIR, CCWLIM, CWLIM, EMG, STOP, EGEAR1, EGEAR2, PCON, GAIN2, P_CLR, T_LMT, MODE, ABS_RQ, ZCLAMP You can selectively allocate a total of 19 functions. You can set the positive/negative logic of the selected signal.					
	Digital Output		A total of 5 channels (allocable), 3 channels (fixed with alarm codes) ALARM, READY, ZSPD, BRAKE, INPOS, TLMT, VLMT, INSPD, WARN You can selectively allocate a total of nine kinds of output. You can set the positive/negative logic of the selected signal.					
	Communication	RS422	Accessible to PC software and the RS422 server					
USB		Status monitoring through PC software, JOG operation, and parameter uploading/downloading are possible.						
Encoder			Serial BiSS encoder and quadrature encoder supported					
Encoder Output Type			Random pre-scale output through FPGA (maximum 6.4 Mpps)					
Built-in functions	Dynamic Braking		Standard built-in (activated when the servo alarm goes off or when the servo is off)					
	Regenerative Braking		Both default built-in and external installation possible					
	Display		Seven segments (5 DIGIT)					
	Setting Function		Loader (SET, MODE, UP, and [DOWN] keys)					
	Additional Function		Auto gain tuning, phase Z detection, manual JOG operation, program JOG operation, automatic analog input calibration					
Protective Function			Overcurrent, overload, overvoltage, voltage lack, main power input error, control power input error, overspeed, motor cable, heating error (power module heating, drive temperature error), encoder error, excessive regeneration, sensor error, communication error					
Environment		Temperature	0 ~ 50[℃]					
		Humidity	90[%] RH or lower (no condensation)					
		Environment	Indoors, a place free from corrosive gas or combustible gas, or a place without liquid or conductive dust.					

L7 SERIES SYSTEM

External Dimensions of L7SA Drive

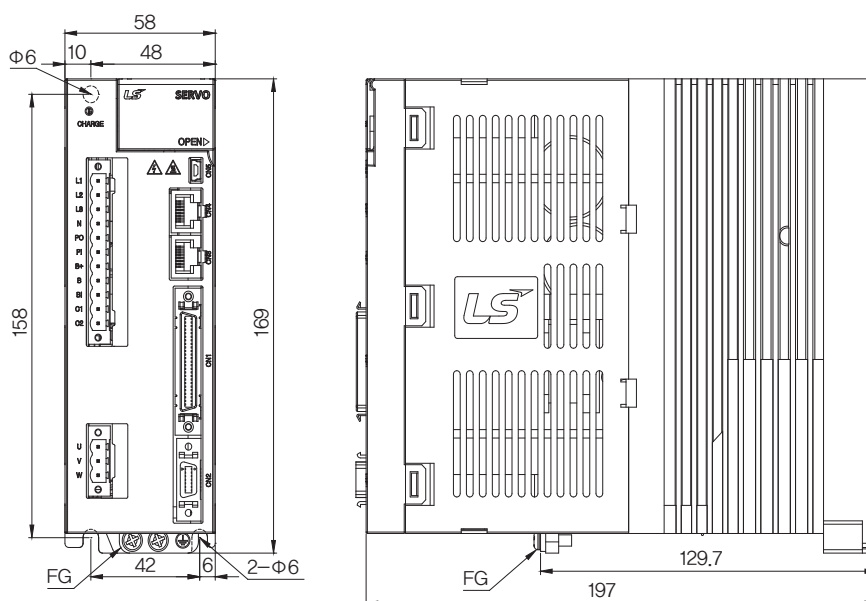
■ L7SA001□ ~ L7SA004□ [Weight : 1.2kg]

* Unit [mm]



■ L7SA008□ ~ L7SA010□ [Weight : 1.5kg(Fan-Cooling included)]

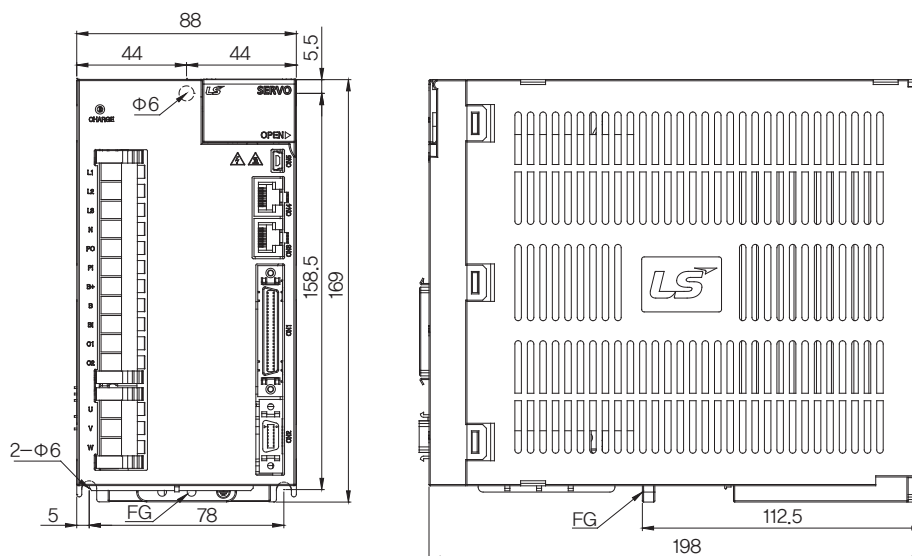
* Unit [mm]



External Dimensions of L7SA Drive

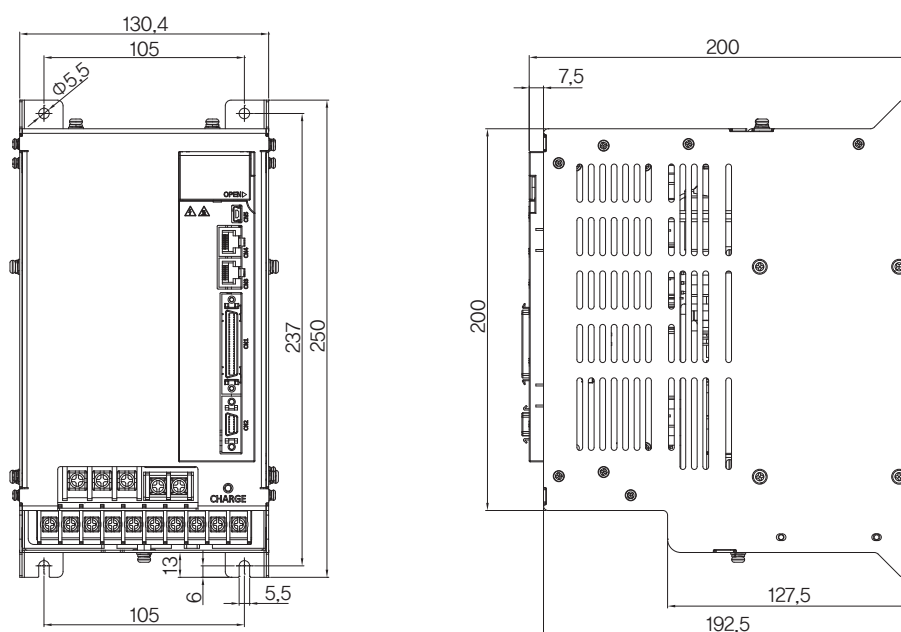
■ L7SA020 □ ~ L7SA035 □ [Weight : 2.5kg(Fan-Cooling included)]

*Unit [mm]



■ L7SA050 □ [Weight : 5.5kg(Fan-Cooling included)]

*Unit [mm]

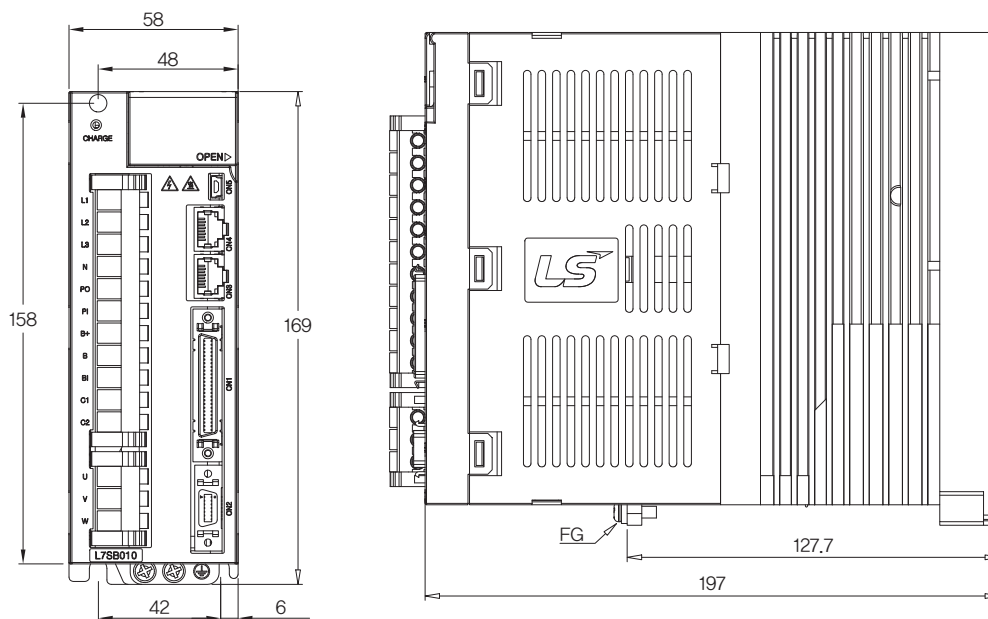


L7 SERIES SYSTEM

External Dimensions of L7SB Drive

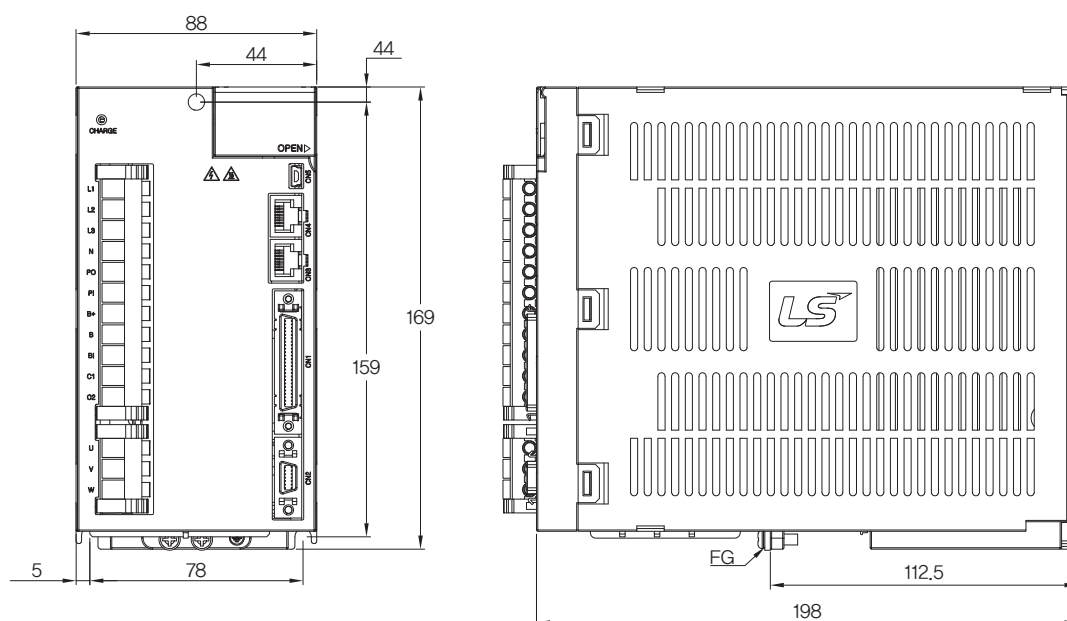
L7SB010B [Weight : 1.5kg(Fan-Cooling included)]

* Unit [mm]



L7SB020B / L7SB035B [Weight : 2.5kg(Fan-Cooling included)]

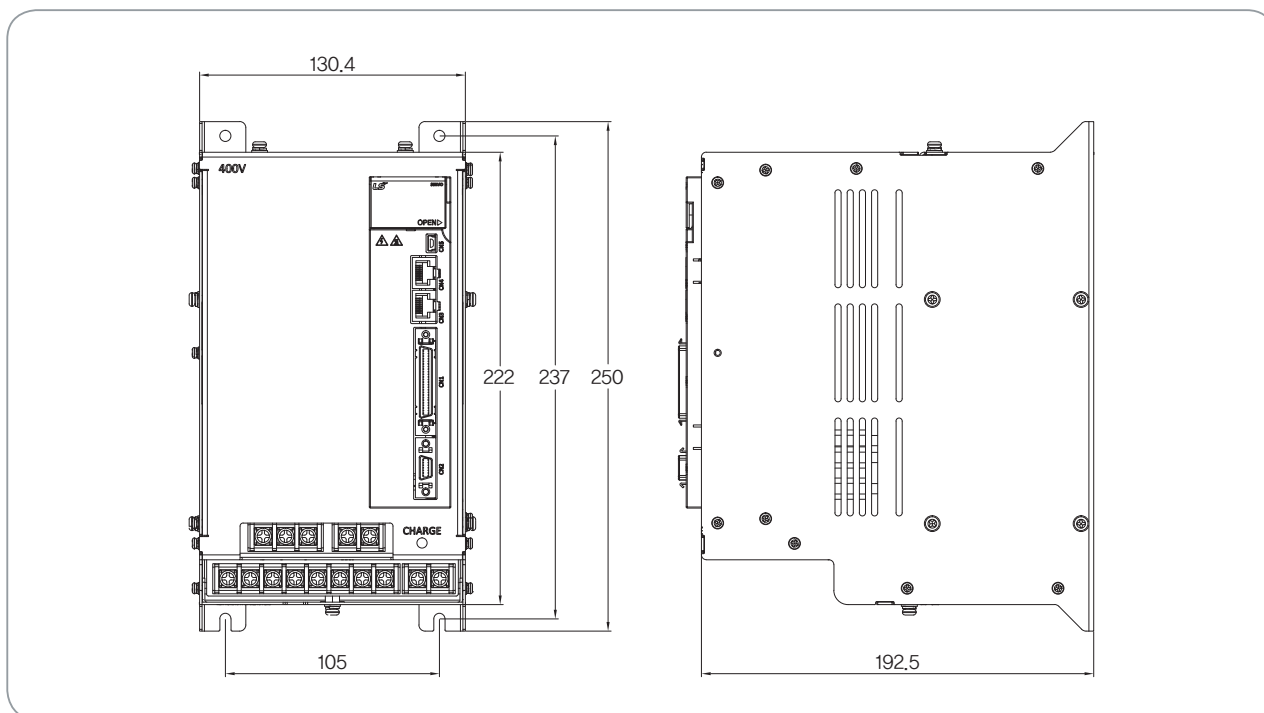
* Unit [mm]



External Dimensions of L7SB Drive

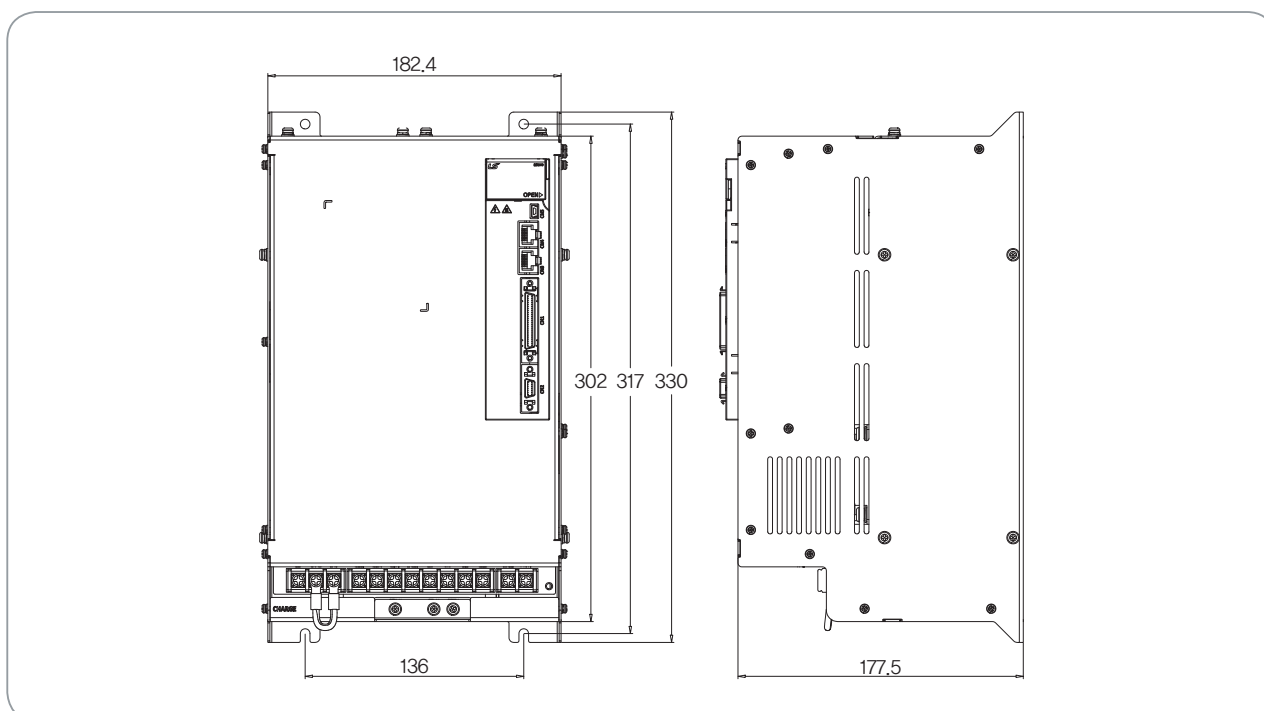
L7SB050B [Weight : 5.5kg(Fan-Cooling included)]

*Unit [mm]



L7SB075B [Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]



EtherCAT Communication Command Type

L7N Series



Servo Drive Designation

L7	N	A	004	B	AA
Model Name	Communication	Input Power Supply	Capacity	Encoder Type	Option
Servo Series	Network Type	A : 200VAC	001 : 100W 002 : 200W 004 : 400W 008 : 750W 010 : 1.0kW 020 : 2.0kW 035 : 3.5kW 050 : 5.0kW	B : Serial (Communication Type)	Exclusive Option Code

L7 SERIES SYSTEM

L7N Series

Characteristic

● Real-time control by EtherCAT

- High speed, Real-time capability and Synchronization mechanism
- 100BASE-TX(100Mbps) EtherNET based real-time communication

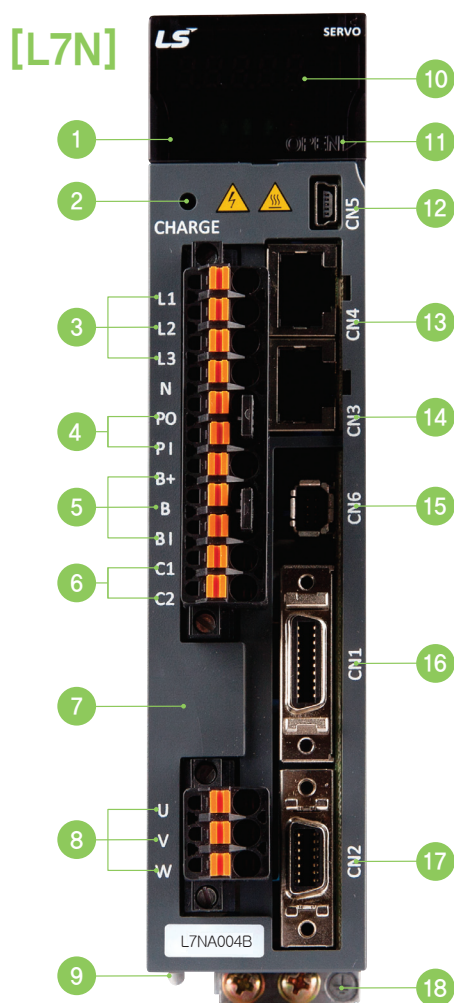
● Support Various Operation Mode

- Cyclic(P/S/T) Mode and Profile (P/S/T)Mode, Homming Mode

● High Response for Precision Control

- High Resolutions Serial type Encoder(19Bit, BiSS)
- Improved Speed Response(=1KHz) Frequency

Identifying the Part of L7N Drive



- 1 Operation keys (Mode, Up, Down, Set)
- 2 Charge lamp
- 3 Main power connector (L1, L2, L3)
- 4 DC reactor connector(PO, PI)
 - Short circuit when not used
- 5 Regenerative Resistor Connector (B+, B, BI)
 - Short-Circuit B, BI terminals when standard type
 - Use B+, B terminals when using external resistor
- 6 Control Power Connector (C1, C2)
- 7 Front cover
- 8 Servo Motor Connecting Terminals (U, V, W)
- 9 Heat Sink
- 10 Display
- 11 Status LED
- 12 CN5:USB connector
- 13 CN4:EtherCAT Communication Port (IN)
- 14 CN3:EtherCAT Communication Port (OUT)
- 15 CN6 : STO Connector
- 16 CN1 : Control Signal Connector
- 17 CN2 : Encoder Signal Connector
- 18 PE(Protective Earth)

L7N Drive Combination Table

L7N Serial Type

Rated Speed (rpm)	Maximum speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder Cable		Power Cable					
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake			
3,000	5,000	□40	FALR5A	L7NA001B	* 18Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS		APCS-B□□□QS			
		□40	FAL01A	L7NA001B									
		□40	FAL015A	L7NA004B									
		□60	FBL01A	L7NA001B									
		□60	FBL02A	L7NA002B									
		□60	FBL04A	L7NA004B									
		□80	FCL04A	L7NA004B									
		□80	FCL06A	L7NA008B									
		□80	FCL08A	L7NA008B									
		□80	FCL10A	L7NA010B									
		□60	FB01A	L7NA001B									
		□60	FB02A	L7NA002B									
		□60	FB04A	L7NA004B									
		□80	FC04A	L7NA004B									
		□80	FC06A	L7NA008B									
		□80	FC08A	L7NA008B									
		□80	FC10A	L7NA010B									
		□130	FE09A	L7NA010B									
		□130	FE15A	L7NA020B									
		□130	FE22A	L7NA020B									
		□130	FE30A	L7NA035B									
		□180	FF30A	L7NA035B									
		□180	FF50A	L7NA050B									
2,000	3,000	□80	FCL03D	L7NA004B	* 19Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS		APCS-B□□□QS			
		□80	FCL05D	L7NA008B									
		□80	FCL06D	L7NA008B									
		□80	FCL07D	L7NA008B									
		□80	FC03D	L7NA004B									
		□80	FC05D	L7NA008B									
		□80	FC06D	L7NA008B									
		□80	FC07D	L7NA008B									
		□130	FE06D	L7NA008B									
		□130	FE11D	L7NA010B									
		□130	FE16D	L7NA020B									
		□130	FE22D	L7NA020B									
		□180	FF22D	L7NA020B									
		□180	FF35D	L7NA035B									
		□180	FF55D	L7NA050B									
	3,000	□220	FG22D	L7NA020B		APCS-P□□□IS	APCS-P□□□NB	APCS-P□□□PB	APCS-P□□□LB				
	2,700	□220	FG35D	L7NA035B									
	3,000	□220	FG55D	L7NA050B									
	3,000	□220	FG44G	L7NA050B									
	1,500	3,000	□130	FE05G		L7NA008B	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□PB	APCS-P□□□LB	
			□130	FE09G		L7NA010B							
			□130	FE13G		L7NA020B							
			□130	FE17G		L7NA020B							
□180			FF20G	L7NA020B									
2,700		□180	FF30G	L7NA035B		APCS-P□□□IS			APCS-P□□□NB	APCS-P□□□PB	APCS-P□□□LB		
3,000		□180	FF44G	L7NA050B									
3,000		□220	FG20G	L7NA020B									
2,700		□220	FG30G	L7NA035B									
3,000		□220	FG44G	L7NA050B									
1,000	2,000	□130	FE03M	L7NA004B		APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□IS	APCS-P□□□PB	APCS-P□□□LB	APCS-P□□□SB		
		□130	FE06M	L7NA008B									
		□130	FE09M	L7NA010B									
		□130	FE12M	L7NA020B									
		□180	FF12M	L7NA020B									
		□180	FF20M	L7NA020B									
	1,700	□180	FF30M	L7NA035B				APCS-P□□□JS	APCS-P□□□LB	APCS-P□□□SB			
	2,000	□180	FF44M	L7NA050B									
		□220	FG12M	L7NA020B									
		□220	FG20M	L7NA020B									
	1,700	□220	FG30M	L7NA035B							APCS-P□□□IS	APCS-P□□□LB	APCS-P□□□SB
	2,000	□220	FG44M	L7NA050B									

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7N Drive Product Features

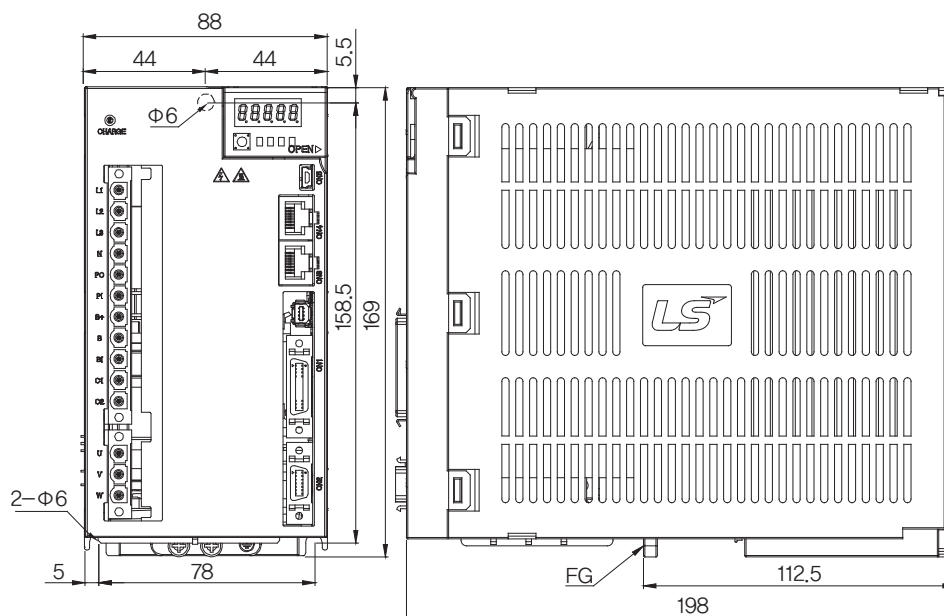
Item		Type Name	L7NA001B	L7NA002B	L7NA004B	L7NA008B	L7NA010B	L7NA020B	L7NA035B	L7NA050B
Input Power	Main Power Supply	3 Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]								
	Control Power Supply	Single Phase AC200 ~ 230[V](-15 ~ +10[%]), 50 ~ 60[Hz]								
Rated Current[A]			1.4	1.7	3.0	5.2	6.75	13.5	16.7	32
Peak Current[A]			4.2	5.1	9.0	15.6	20.25	40.5	50.1	96
Encoder Type		Serial Type : 18 bit(FA type), 19bit, 20bit(MDM series)								
Control Performance	Speed Control Range	Maximum 1: 5000								
	Frequency Response	Maximum 1 kHz or more (when the 19-bit serial encoder is applied)								
	Speed Variation Ratio	±0.01[%] or lower(When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25°C[±10])								
	Torque Control Repetition Accuracy	Within ±1%								
Supported Drive Modes (CiA402)		Profile Position Mode Profile Velocity Mode Profile Torque Mode Interpolated Position Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Homing Mode								
Digital Input/Output	Digital Input	Total 6 input channels (allocable) PCON, GAIN2, ALMRST, HOME, P-OT, N-OT Above 6 functions can be used selectively for assignment. Signal can be set as positive logic or negative logic.								
	Touch Probe Input	There are 2 input channels. Provides rising and falling edge detection functions for each channel.								
	Digital Output	Total 4 channels (allocable) ALARM, READY, ZSPD, BRAKE, INPOS, INSPD, WARN Above 7 outputs can be used selectively for assignment. Signal can be set as positive logic or negative logic.								
Additional Communication	USB	Program download is available with USB Communication.								
Built-in Functions	Dynamic Braking	Built-in type(operates when Servo alarm or Servo off)								
	Regenerative Braking	Built-in type, and also external connection is available								
	Display	7 segments(5DIGIT)								
	Setting Function	Loder(SET), (MODE)								
	Additional Function	Auto gain tuning function								
Operation Environment	Protective Function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem								
	Temperature	0 ~ 50[°C]								
	Humidity	Below 90[%]RH(avoid dew-condensation)								
Environment		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.								

L7 SERIES SYSTEM

External Dimensions of L7SN Drive

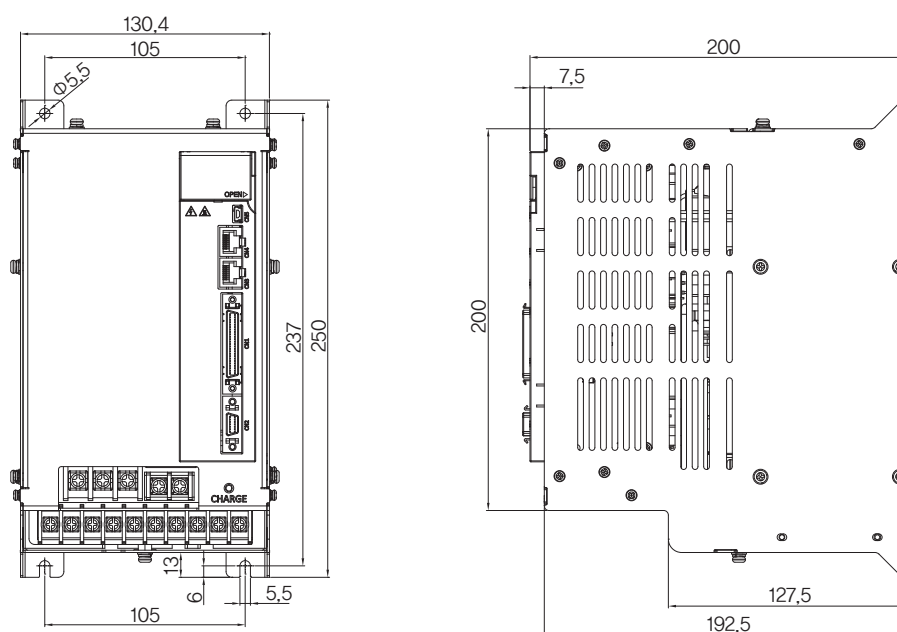
L7NA020B / L7NA035B [Weight : 2.5kg(Fan-Cooling included)]

* Unit [mm]



L7NA050B [Weight : 5.5kg(Fan-Cooling included)]

* Unit [mm]



All-in-one EtherCAT Communication Command Type

L7NH Series



Servo Drive Designation

L7	NH	A	004	U	AA
Model Name	Communication	Input Power Supply	Capacity	Encoder Type	Option
Servo Series	Network / All-in-One Type	A : 200VAC B : 400VAC	001 : 100W 002 : 200W 004 : 400W 008 : 750W 010 : 1.0kW 020 : 2.0kW 035 : 3.5kW 050 : 5.0kW 075 : 7.5kW 150 : 15kW	U : Universal	Exclusive Option Code

* Range
· 200V : 0.1kW~15kW
· 400V : 1.0kW~15kW

L7 SERIES SYSTEM

L7NH Series

Characteristic

● Real-time control through EtherCAT

- High speed, Real-time capability and Synchronization mechanism
- Improved EtherCAT communication speed(min. 250us, DC support)
- Supporting CoE, EoE and FoE
- Improved Speed Response(=1.6Khz) Frequency

● Improved Control Performance

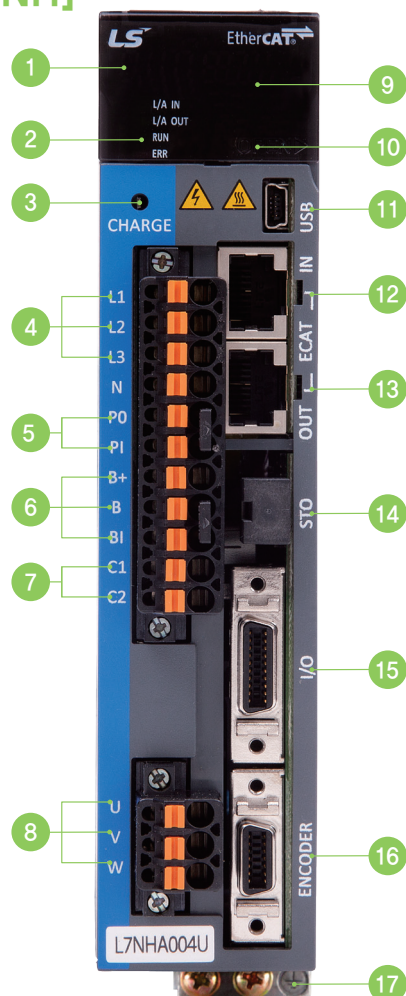
- Improved Control bandwidth
- Providing 4-step Notch-Filter
- Vibration control by Real-time FFT
- Real-time gain tuning function

● Support various motor and Encoder drive

- Supporting Rotary, DD and Motor drive (supporting 3rd party motor)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2

Identifying the Part of L7NH Drive

[L7NH]



- 1 Display
- 2 State LED
- 3 Charge Lamp
- 4 Main Power Connector (L1, L2, L3)
- 5 DC Reactor Connector (PO, PI)
- 6 Regenerative Resistance Connector (B+, B, BI)
 - Short-Circuit B, BI terminals when standard type
 - Use B+, B terminals when using external resistor
- 7 Control Power Connector (C1, C2)
- 8 Servo Motor Connecting Terminal (U,V,W)
- 9 Connector for Analog Monitor
- 10 Node Address Setting Switch
- 11 USB Connector
- 12 EtherCAT Communication Port (IN)
- 13 EtherCAT Communication Port (OUT)
- 14 Safety Torque off Connector
- 15 Input / Output signal /Connector
- 16 Encoder Connector (ENCODER)
- 17 PE(Protective Earth)

L7NHA Drive Combination Table

■ L7NHA Incremental Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable	Power Cable			
					Quadrature Type	INC	For power	Power + Brake	Brake	
3,000	5,000	□40	SAR3A	L7NHA001U	* 2,048 P/R	APCS-E□□□AS	APCS-P□□□GS		APCS-P□□□KB	
		□40	SAR5A	L7NHA001U						
		□40	SA01A	L7NHA001U						
		□40	SA015A	L7NHA002U						
		□60	SB01A	L7NHA002U						
		□60	SB02A	L7NHA002U						
		□60	SB04A	L7NHA004U						
		□80	SC04A	L7NHA004U						
		□80	SC06A	L7NHA008U						
		□80	SC08A	L7NHA008U						
		□80	SC10A	L7NHA010U						
		□130	SE09A	L7NHA008U						
		□130	SE15A	L7NHA020U						
		□130	SE22A	L7NHA020U						
		□130	SE30A	L7NHA035U						
		□180	SF30A	L7NHA035U						
□180	SF50A	L7NHA050U								
2,000	3,000	□80	SC03D	L7NHA004U	* 3,000 P/R	APCS-E□□□AS	APCS-P□□□GS		APCS-P□□□KB	
		□80	SC05D	L7NHA008U						
		□80	SC06D	L7NHA008U						
		□80	SC07D	L7NHA008U						
		□130	SE06D	L7NHA008U						
		□130	SE11D	L7NHA010U						
		□130	SE16D	L7NHA020U						
		□130	SE22D	L7NHA020U						
		□180	SF22D	L7NHA020U						
		□180	LF35D	L7NHA035U						
		□180	SF55D	L7NHA050U						
		2,500	□180	SF75D						L7NHA075U
		3,000	□220	SG22D						L7NHA020U
		3,000	□220	LG35D						L7NHA035U
		3,000	□220	SG55D						L7NHA050U
		2,500	□220	SG75D						L7NHA075U
1,500	3,000	□130	SE05G	L7NHA008U	* 3,000 P/R	APCS-E□□□BS	APCS-P□□□HS	APCS-P□□□NB	APCS-P□□□PB	
		□130	SE09G	L7NHA010U						
		□130	SE13G	L7NHA020U						
		□130	SE17G	L7NHA020U						
		□180	SF20G	L7NHA035U						
		3,000	□180	SF44G						L7NHA050U
		2,500	□180	SF60G						L7NHA075U
		2,000	□220	SF75G						L7NHA150U
		2,700	□180	LF30G						L7NHA035U
		3,000	□220	SG20G						L7NHA020U
		2,700	□220	LG30G						L7NHA035U
		2,500	□220	SG60G						L7NHA075U
		2,500	□220	SG85G						L7NHA150U
		2,000	□220	SG110G						L7NHA150U
		2,000	□220	SG150G						L7NHA150U
		1,000	2,000	□130						SE03M
□130	SE06M			L7NHA008U						
□130	SE09M			L7NHA010U						
□130	SE12M			L7NHA020U						
□180	SF12M			L7NHA020U						
□180	SF20M			L7NHA035U						
1,700	□180			LF30M	L7NHA035U					
2,000	□180			SF44M	L7NHA050U					
2,000	□220			SG12M	L7NHA020U					
2,000	□220			SG20M	L7NHA035U					
1,700	□220			LG30M	L7NHA035U					
2,000	□220			SG44M	L7NHA050U					
2,000	□220			SG60M	L7NHA075U					
2,000	□220			SG60M	L7NHA075U					
2,000	□220			SG60M	L7NHA075U					
3,000	3,500			□60	HB01A	L7NHA002U	* 1,048 P/R	APCS-E□□□AS	APCS-P□□□GS	
		□60	HB02A	L7NHA002U						
		□60	HB04A	L7NHA004U						
		□130	HE09A	L7NHA008U	* 2,048 P/R	APCS-E□□□BS	APCS-P□□□HS			
		□130	HE15A	L7NHA020U						
		□130	HE30A	L7NHA050U						

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7NHA Drive Combination Table

L7NHA Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable		Power Cable					
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake			
3,000	5,000	□40	FALR5A	L7NHA001U	* 18Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS	APCS-B□□□QS				
		□40	FAL01A	L7NHA001U									
		□40	FAL015A	L7NHA004U									
		□60	FBL01A	L7NHA001U									
		□60	FBL02A	L7NHA002U									
		□60	FBL04A	L7NHA004U									
		□80	FCL04A	L7NHA004U									
		□80	FCL06A	L7NHA008U									
		□80	FCL08A	L7NHA008U									
		□80	FCL10A	L7NHA010U									
		□60	FB01A	L7NHA001U									
		□60	FB02A	L7NHA002U									
		□60	FB04A	L7NHA004U									
		□80	FC04A	L7NHA004U									
		□80	FC06A	L7NHA008U									
		□80	FC08A	L7NHA008U									
		□80	FC10A	L7NHA010U									
		□130	FE09A	L7NHA010U									
		□130	FE15A	L7NHA020U									
		□130	FE22A	L7NHA020U									
□130	FE30A	L7NHA035U											
2,000	3,000	□80	FCL03D	L7NHA004U	* 19Bit Serial / M-Turn Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS	APCS-B□□□QS				
		□80	FCL05D	L7NHA008U									
		□80	FCL06D	L7NHA008U				APCS-P□□□HS			APCS-P□□□NB		
		□80	FCL07D	L7NHA008U									
		□80	FC03D	L7NHA004U				APCS-P□□□FS					
		□80	FC05D	L7NHA008U									
		□80	FC06D	L7NHA008U									
		□80	FC07D	L7NHA008U									
		□130	FE06D	L7NHA008U									
		□130	FE11D	L7NHA010U									
	□130	FE16D	L7NHA020U										
	□130	FE22D	L7NHA020U										
	□180	FF22D	L7NHA020U										
	□180	FF35D	L7NHA035U										
	□180	FF55D	L7NHA050U										
	2,500	□180	FF75D	L7NHA075U									
		3,000	□220	FG22D		L7NHA020U							
			□220	FG35D		L7NHA035U							
			□220	FG55D		L7NHA050U							
	2,500		□220	FG75D		L7NHA075U							
□220		FG110D	L7NHA150U										
1,500		3,000	□130	FE05G	L7NHA008U	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB				
			□130	FE09G	L7NHA010U								
	□130		FE13G	L7NHA020U									
	□130		FE17G	L7NHA020U									
	□180	FF20G	L7NHA020U										
	□180	FF30G	L7NHA035U										
	□180	FF44G	L7NHA050U										
	□180	FF60G	L7NHA075U										
2,500	□180	FF75G	L7NHA075U										
	□220	FG20G	L7NHA020U										
	□220	FG30G	L7NHA035U										
	□220	FG44G	L7NHA050U										
	□220	FG60G	L7NHA075U										
	□220	FG85G	L7NHA150U										
	□220	FG110G	L7NHA150U										
	□220	FG150G	L7NHA150U										
1,000	2,000	□130	FE03M	L7NHA004U	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□HS	APCS-P□□□NB					
		□130	FE08M	L7NHA008U									
		□130	FE09M	L7NHA010U									
		□130	FE12M	L7NHA020U									
		□180	FF12M	L7NHA020U									
		□180	FF20M	L7NHA020U									
	1,700	□180	FF30M	L7NHA035U									
		□180	FF44M	L7NHA050U									
		□220	FG12M	L7NHA020U									
	2,000	□220	FG20M	L7NHA020U									
		□220	FG30M	L7NHA035U									
		□220	FG44M	L7NHA050U									
2,000	□220	FG60M	L7NHA075U										

L7NHB Drive Combination Table

L7NHB Incremental Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable	Power Cable				
					Quadrature Type	INC	For power	Power + Brake	Brake		
3,000	5,000	□130	SEP09A	L7NHB010U	3,000 P/R	APCS-E□□□BS	APCF-P□□□HS	APCF-P□□□NB			
		□130	SEP15A	L7NHB020U							
		□130	SEP22A	L7NHB020U							
		□130	SEP30A	L7NHB035U							
		□180	SFP30A	L7NHB035U							
		□180	SFP50A	L7NHB050U							
2,000	3,000	□130	SEP06D	L7NHB010U			3,000 P/R	APCS-E□□□BS	APCF-P□□□HS	APCF-P□□□NB	
		□130	SEP11D	L7NHB010U							
		□130	SEP16D	L7NHB020U							
		□130	SEP22D	L7NHB020U							
		□180	SFP22D	L7NHB020U							
		□180	SFP35D	L7NHB035U							
		□180	SFP55D	L7NHB050U							
		□180	SFP75D	L7NHB075U							
		□220	SGP22D	L7NHB020U							
		□220	SGP35D	L7NHB035U							
		□220	SGP55D	L7NHB050U							
	2,500	□220	SGP75D	L7NHB075U							
		□220	SGP110D	L7NHB150U							
		□220	SGP110D	L7NHB150U							
		□220	SGP110D	L7NHB150U							
		□220	SGP110D	L7NHB150U							
1,500	3,000	□130	SEP05G	L7NHB010U			3,000 P/R	APCS-E□□□BS	APCF-P□□□HS	APCF-P□□□NB	
		□130	SEP09G	L7NHB010U							
		□130	SEP13G	L7NHB020U							
		□130	SEP17G	L7NHB020U							
		□180	SFP20G	L7NHB020U							
		□180	SFP30G	L7NHB050U							
		□180	SFP44G	L7NHB050U							
		□180	SFP60G	L7NHB075U							
	2,500	□180	SFP75G	L7NHB075U							
		□220	SGP20G	L7NHB020U							
		□220	SGP30G	L7NHB050U							
		3,000	□220	SGP44G					L7NHB050U		
	2,500		□220	SGP60G					L7NHB075U		
			□220	SGP85G					L7NHB150U		
	2,000		□220	SGP110G					L7NHB150U		
		□220	SGP150G	L7NHB150U							
1,000	2,000	□130	SEP03M	L7NHB010U			3,000 P/R	APCS-E□□□BS	APCF-P□□□HS	APCF-P□□□NB	
		□130	SEP06M	L7NHB010U							
		□130	SEP09M	L7NHB010U							
		□130	SEP12M	L7NHB020U							
		□180	SFP12M	L7NHB020U							
		□180	SFP20M	L7NHB020U							
	1,700	□180	SFP30M	L7NHB035U							
		□180	SFP44M	L7NHB050U							
	2,000	□220	SGP12M	L7NHB020U							
		□220	SGP20M	L7NHB020U							
		□220	SGP30M	L7NHB050U							
		□220	SGP44M	L7NHB050U							
		□220	SGP60M	L7NHB075U							
		□220	SGP60M	L7NHB075U							

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7NHB Drive Combination Table

L7NHB Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable		Power Cable				
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake		
3,000	5,000	□130	FEP09A	L7NH-B010U	19Bit Serial / M-Turn Abs	APCS-E□□□DS	APCS-E□□□DS1	APCF-P□□□HS	APCF-P□□□NB			
		□130	FEP15A	L7NH-B020U								
		□130	FEP22A	L7NH-B035U								
		□130	FEP30A	L7NH-B035U								
		□180	FFP30A	L7NH-B035U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP50A	L7NH-B050U				APCF-P□□□JS	APCF-P□□□LB			
2,000	3,000	□130	FEP06D	L7NH-B010U						APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP11D	L7NH-B010U								
		□130	FEP16D	L7NH-B020U								
		□130	FEP22D	L7NH-B020U								
		□180	FFP22D	L7NH-B020U								
		□180	FFP35D	L7NH-B035U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP55D	L7NH-B050U				APCF-P□□□JS	APCF-P□□□LB			
	2,500	□180	FFP75D	L7NH-B075U								APCF-P□□□SB
	3,000	□220	FGP22D	L7NH-B020U				APCF-P□□□IS				
	2,700	□220	FGP35D	L7NH-B035U				APCF-P□□□JS				
	3,000	□220	FGP55D	L7NH-B050U				APCF-P□□□MS				
	2,500	□220	FGP75D	L7NH-B075U				APCF-P□□□IS				
1,500	3,000	□130	FEP05G	L7NH-B010U						APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP09G	L7NH-B010U								
		□130	FEP13G	L7NH-B020U								
		□130	FEP17G	L7NH-B020U								
		□180	FFP20G	L7NH-B020U				APCF-P□□□IS	APCF-P□□□PB			
	2,700	□180	FFP30G	L7NH-B035U								APCF-P□□□LB
	3,000	□180	FFP44G	L7NH-B050U				APCF-P□□□JS				
	2,500	□180	FFP60G	L7NH-B075U				APCF-P□□□MS				
	2,200	□180	FFP75G	L7NH-B075U								
	3,000	□220	FGP20G	L7NH-B020U				APCF-P□□□IS	APCF-P□□□SB			
	2,700	□220	FGP30G	L7NH-B035U								
	3,000	□220	FGP44G	L7NH-B050U				APCF-P□□□JS				
	2,500	□220	FGP60G	L7NH-B075U								
		□220	FGP85G	L7NH-B150U								
	2,000	□220	FGP10G	L7NH-B150U				APCF-P□□□MS				
□220		FGP150G	L7NH-B150U									
1000	2,000	□130	FEP03M	L7NH-B010U						APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP06M	L7NH-B010U								
		□130	FEP09M	L7NH-B010U								
		□130	FEP12M	L7NH-B020U								
		□180	FFP12M	L7NH-B020U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP20M	L7NH-B020U								
	1,700	□180	FFP30M	L7NH-B035U						APCF-P□□□JS	APCF-P□□□LB	APCF-P□□□SB
	2,000	□180	FFP44M	L7NH-B050U								
		□220	FGP12M	L7NH-B020U								
		□220	FGP20M	L7NH-B020U				APCF-P□□□IS				
		□220	FGP30M	L7NH-B050U				APCF-P□□□JS				
		□220	FGP44M	L7NH-B050U				APCF-P□□□MS				
		□220	FGP60M	L7NH-B075U								

L7NHA Drive Product Features

Item \ Type Name		L7NHA001U	L7NHA002U	L7NHA004U	L7NHA008U	L7NHA010U	L7NHA020U	L7NHA035U	L7NHA050U	L7NHA075U	L7NHA150U
Input Power	Main Power Supply	3-Phase AC 200-230 [V] (-15~10[%]), 50~60 [Hz]									
	Control Power Supply	Single-Phase AC 200-230 [V] (-15~10[%]), 50~60 [Hz]									
Rated Current[A]		1.4	1.7	3.0	5.2	6.75	13.5	16.7	32	39.4	76
Peak Current[A]		4.2	5.1	9.0	15.6	20.25	40.5	50.1	90.88	98.5	190
Encoder Type		Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2 Sinusoidal, Analog Hall									
Control Performance	Speed Control Range	Maximum 1: 5000									
	Frequency Response	Maximum 1[kHz] or above(When the 19-bit Serial Encoder is applied)									
	Speed Variation Ratio	±0.01[%] or lower(When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25℃[±10])									
	Torque Control Repetition Accuracy	Within ±1%									
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 Type12, IEC 61800-7 CIA 402 Drive profile)									
	Physical Layer	100BASE-TX(IEEE802.3)									
	Connector	RJ45 x 2									
	Communication distance	Within connection between nodes 100[m]									
	DC (Distributed Clock)	By DC mode synchronism, minimum DC cycle: 250[us]									
	LED Display	LinkAct IN, LinkAct OUT, RUN, ERR									
	Cia402 Drive Profile	Profile Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Homing Mode									
Digital Input/Output	Digital Input	Input Voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (allocable) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST) *Basic allocation signal									
	Digital Output	Service rating: DC 24[V] ±10%, 120[mA] Total 4 input channels (allocable) Above 11 functions can be used selectively for assignment. (*BRAKE±, *ALARM±, *READY±, *ZSPD±, INPOS±, TLMT±, .VLMT±, INSPD±, WARN±, TGON±, INPOS2±) *Basic allocation signal									
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)									
USB Communication	Fuction	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy									
	Communication Standard	USB 2.0 Full Speed (applies standard)									
	Connect	PC or USB storing medium									
Internal Function	Dynamic Braking	Standard built-in brake (activated when the servo alarm goes off or when the servo is off).									
	Regenerative Braking	Both the default built-in brake and an externally installed brake are possible.									
	Display Function	7 segments(5DIGIT)									
	Self-setting Function	Possible to set the drive node address by using Rotary Switch									
	Additional Function	Auto gain tuning function									
Environment	Protection Function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem									
	Temperature	0 ~ +50[°C] / -20 ~ +70[°C]									
	Humidity	Below 90[%]RH(avoid dew-condensation)									
Environment		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.									

L7 SERIES SYSTEM

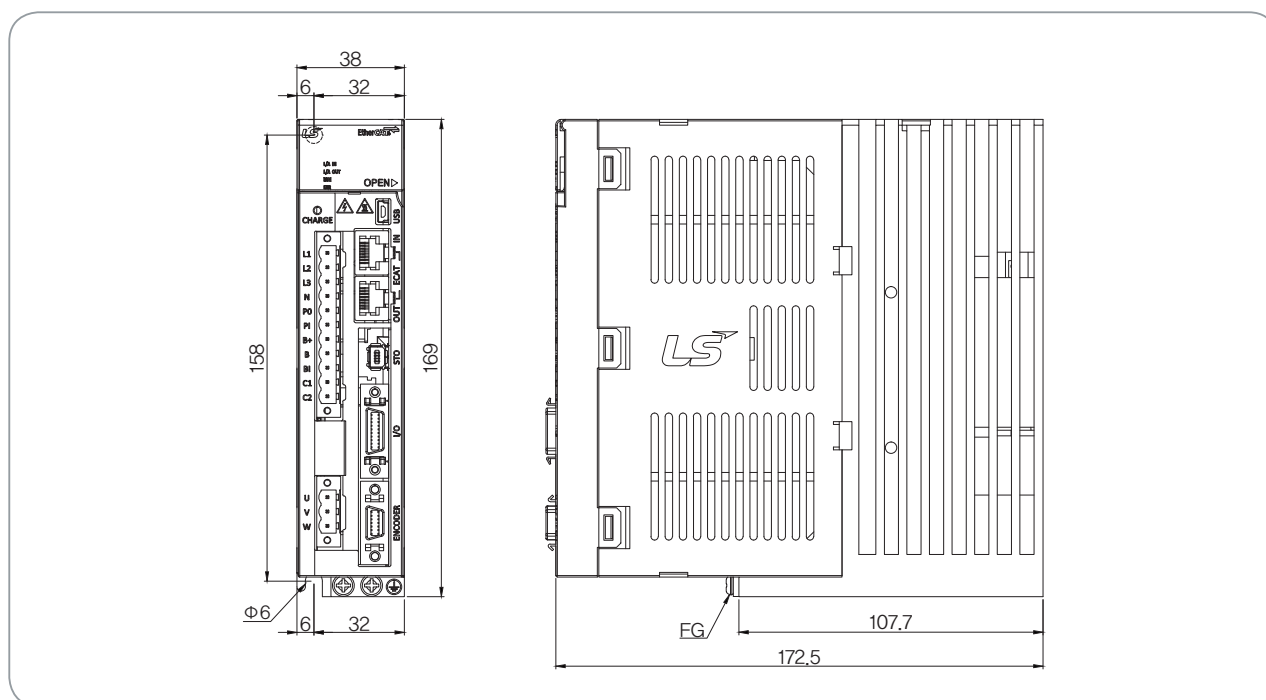
L7NHB Drive Product Features

Item / Type Name		L7NHB010U	L7NHB020U	L7NHB035U	L7NHB050U	L7NHB075U	L7NHB150U
Input Power	Main Power Supply	3-Phase AC 380-480 [V] (-15~10[%]), 50~60 [Hz]					
	Control Power Supply	Single-Phase AC 380-480 [V] (-15~10[%]), 50~60 [Hz]					
Rated Current[A]		3.7	8	10.1	17.5	22.8	39
Peak Current[A]		11.1	24	30.3	47.25	57	97.5
Encoder Type		Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2					
Control Performance	Speed Control Range	Maximum 1: 5000					
	Frequency Response	Maximum 1[kHz] or above(When the 19-bit Serial Encoder is applied)					
	Speed Variation Ratio	±0.01[%] or lower(When the load changes between 0 and 100%) ±0.1[%] or less(Temperature of 25℃[±10])					
	Torque Control Repetition Accuracy	Within ±1%					
EtherCAT Communication Specifications	Communication Standard	FoE (Firmware download) EoE (Parameter setting by UDP, Tuning, Secondary function, Parameter copy) CoE (IEC 61158 Type12, IEC 61800-7 CIA 402 Drive profile)					
	Physical Layer	100BASE-TX(IEEE802.3)					
	Connector	RJ45 x 2					
	Communication distance	Within connection between nodes 100[m]					
	DC (Distributed Clock)	By DC mode synchronism, minimum DC cycle: 250[us]					
	LED Display	LinkAct IN, LinkAct OUT, RUN, ERR					
Digital Input/Output	Cia402 Drive Profile	Profile Position Mode Profile Velocity Mode Profile Torque Mode Cyclic Synchronous Position Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Torque Mode Homing Mode					
	Digital Input	Input Voltage range : DC 12[V] ~ DC 24[V] Total 8 input channels (allocable) Above 12 functions can be used selectively for assignment. (*POT, *NOT, *HOME, *STOP, *PCON, *GAIN2, *P_CL, *N_CL, PROBE1, PROBE2, EMG, A_RST) *Basic allocation signal					
Digital Input/Output	Digital Output	Service rating: DC 24[V] ±10%, 120[mA] Total 4 input channels (allocable) Above 11 functions can be used selectively for assignment. (*BRAKE±, *ALARM±, *READY±, *ZSPD±, INPOS±, TLMT±, VLMT±, INSPD±, WARN±, TGON±, INPOS2±) *Basic allocation signal					
Analog Monitor		There are 2 input channels. Above 15 functions can be used selectively for assignment.					
Safety Function		2 Input Channels (STO1, STO2), 1 Output Channels (EDM±)					
USB Communication	Fuction	Firmware download, Parameter setting, Tuning, Secondary function, Parameter copy					
	Communication Standard	USB 2.0 Full Speed (applies standard)					
	Connect	PC or USB storing medium					
USB Communication	Dynamic Braking	Standard built-in brake (activated when the servo alarm goes off or when the servo is off).					
	Regenerative Braking	Both the default built-in brake and an externally installed brake are possible.					
	Display Function	7 segments(5DIGIT)					
	Self-setting Function	Possible to set the drive node address by using Rotary Switch					
	Additional Function	Auto gain tuning function					
Operation Environment	Protection Function	Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, control power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem					
	Temperature	0 ~ +50[°C] / -20 ~ +70[°C]					
	Humidity	Below 90[%]RH(avoid dew-condensation)					
Other		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.					

External Dimensions of L7NHA Drive

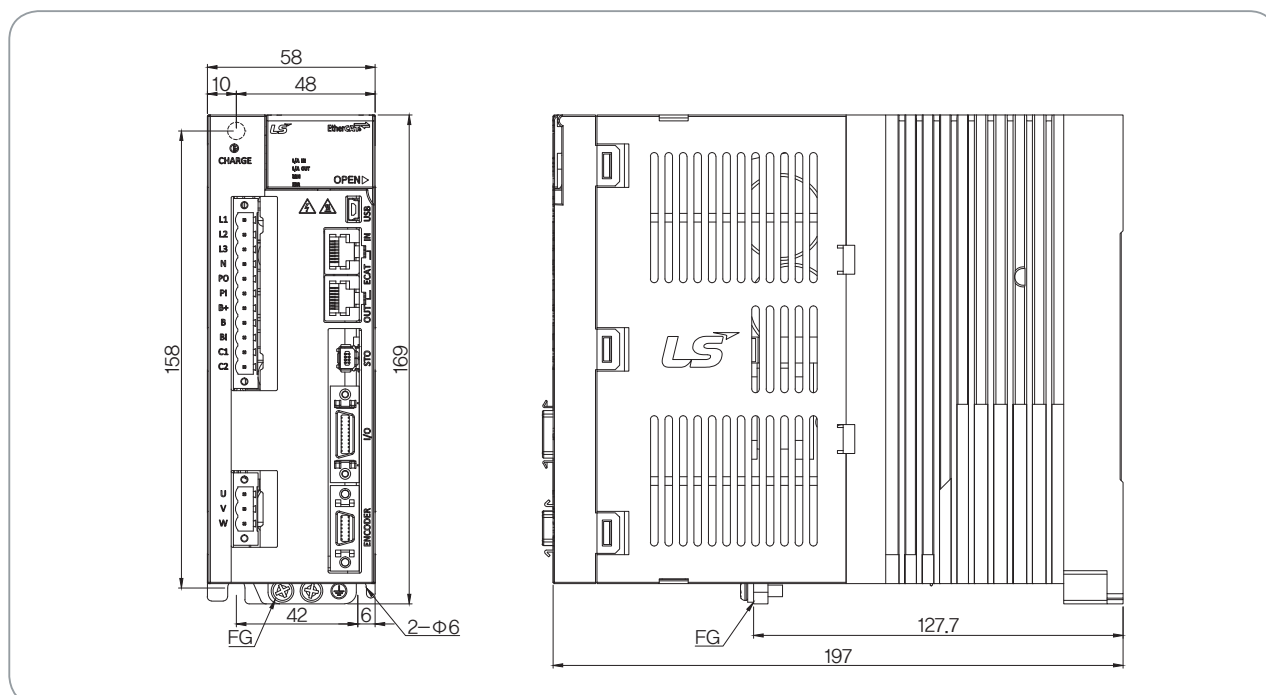
L7NHA001U ~ L7NHA004U [Weight : 1.0kg]

*Unit [mm]



L7NHA008U / L7NHA010U [Weight : 1.5kg(Fan-Cooling included)]

*Unit [mm]

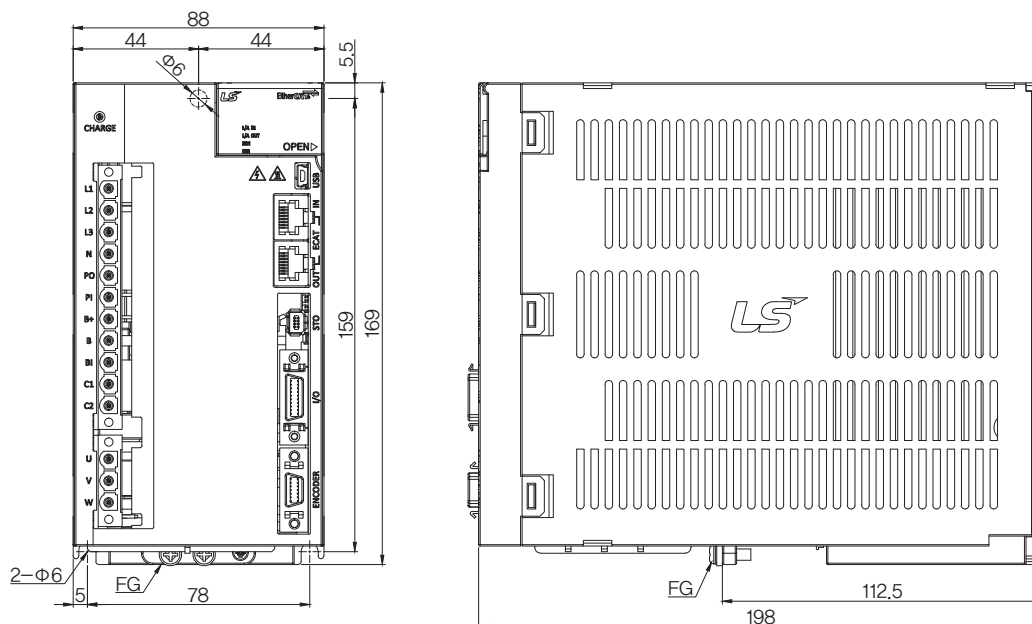


L7 SERIES SYSTEM

External Dimensions of L7NHA Drive

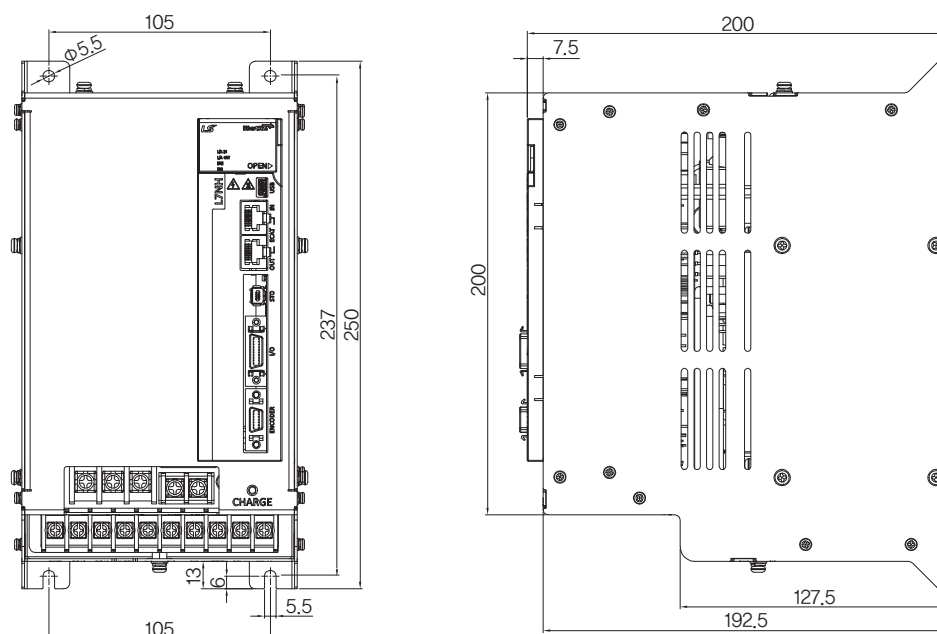
■ L7NHA020U / L7NHA035U [Weight : 2.5kg(Fan-Cooling included)]

* Unit [mm]



■ L7NHA050U [Weight : 5.5kg(Fan-Cooling included)]

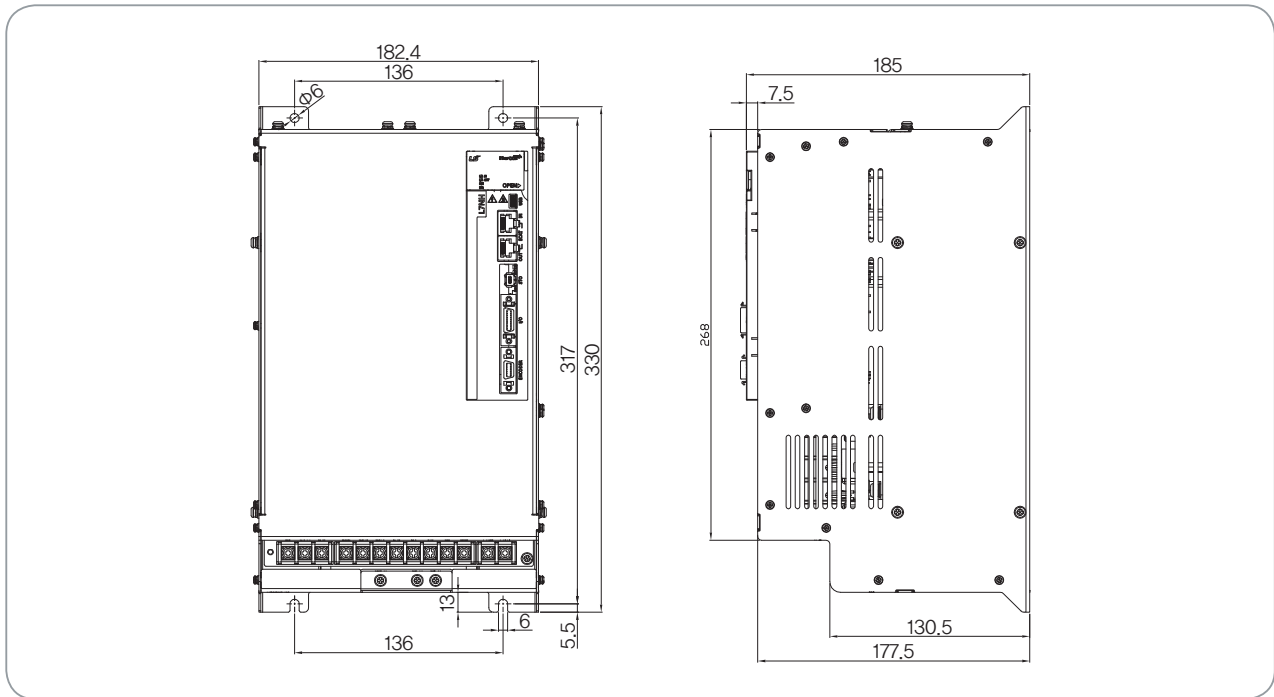
* Unit [mm]



External Dimensions of L7NHA Drive

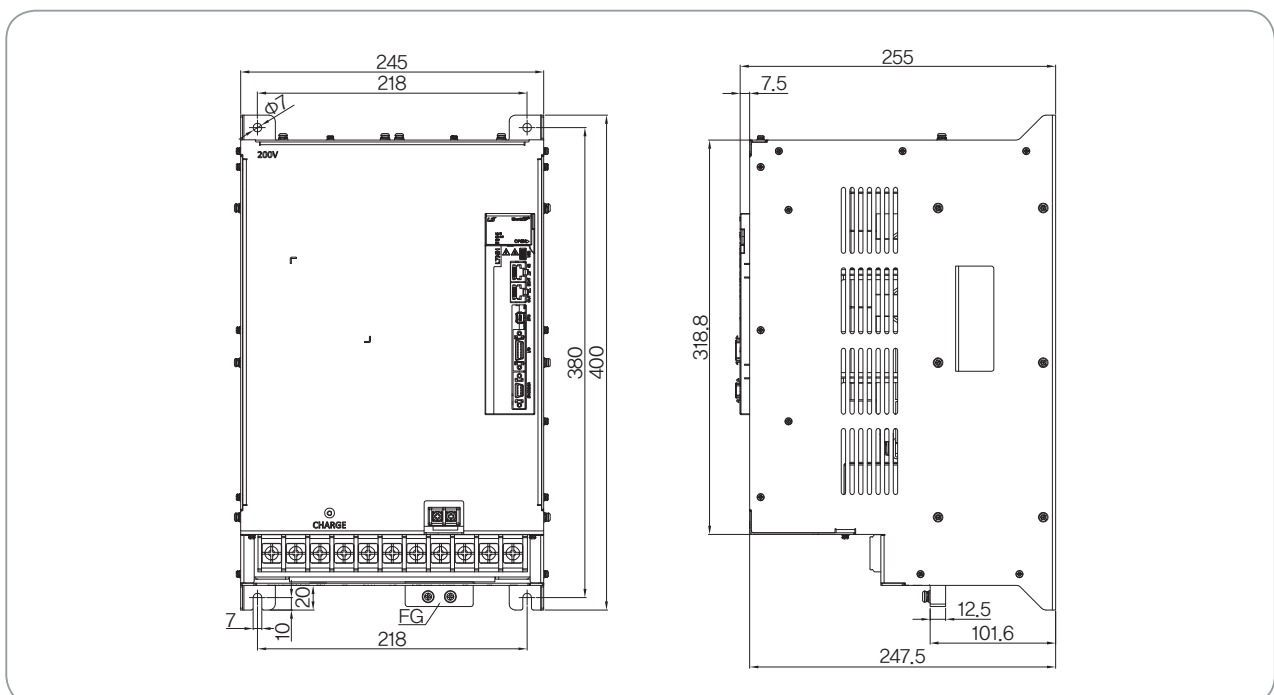
L7NHA075U [Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]



L7NHA150U [Weight : 16.2kg(Fan-Cooling included)]

*Unit [mm]

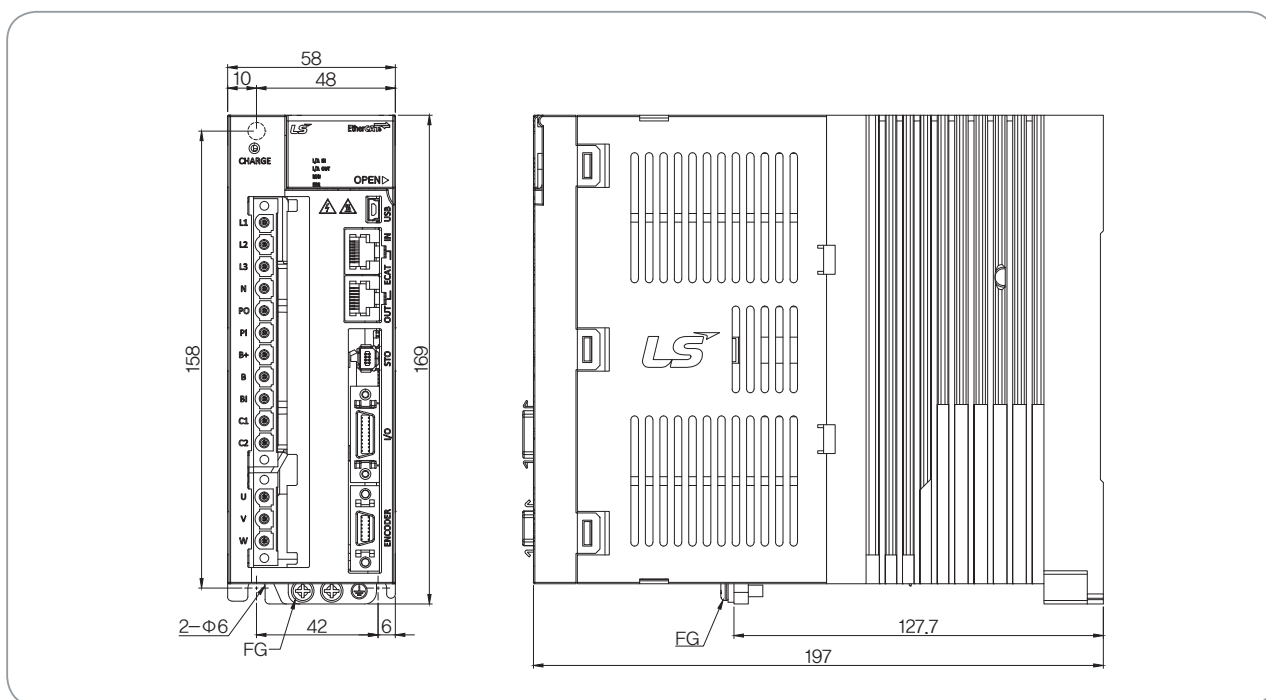


L7 SERIES SYSTEM

External Dimensions of L7NHB Drive

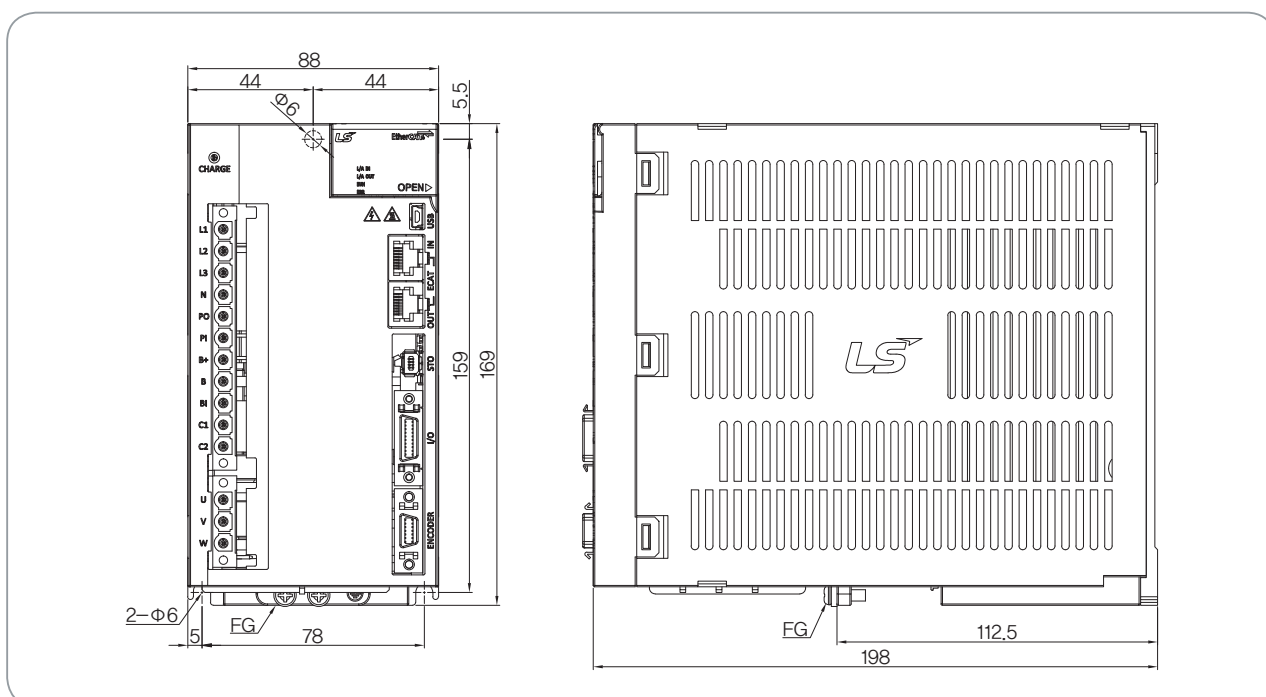
L7NHB010U [Weight : 1.5kg(Fan-Cooling included)]

*Unit [mm]



L7NHB020U / L7NHB035U [Weight : 2.5kg(Fan-Cooling included)]

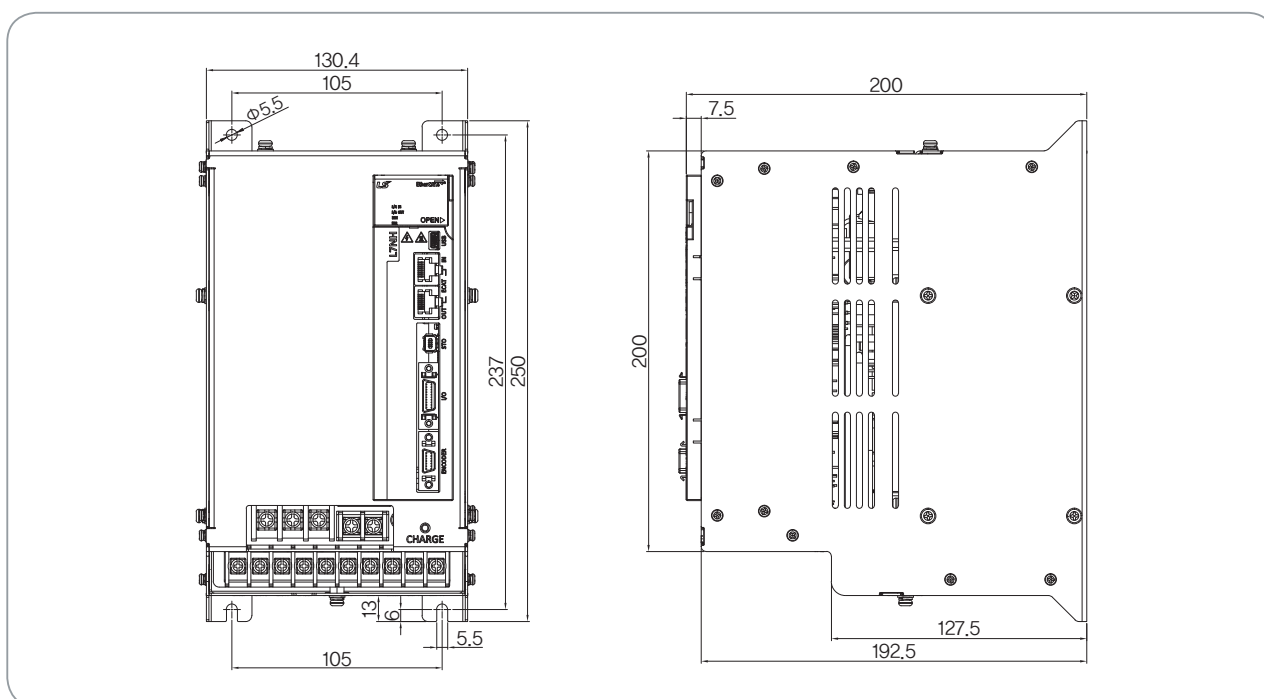
*Unit [mm]



External Dimensions of L7NHB Drive

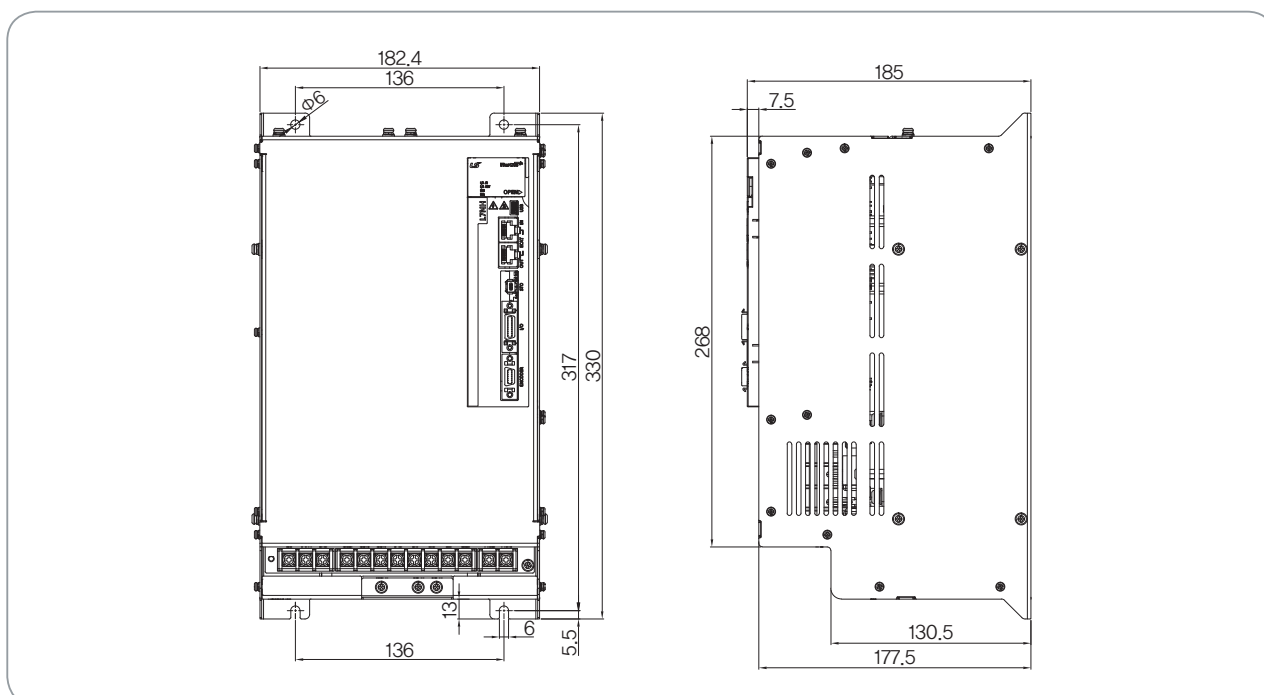
L7NHB050U [Weight : 5.5kg(Fan-Cooling included)]

*Unit [mm]



L7NHB075U [Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]

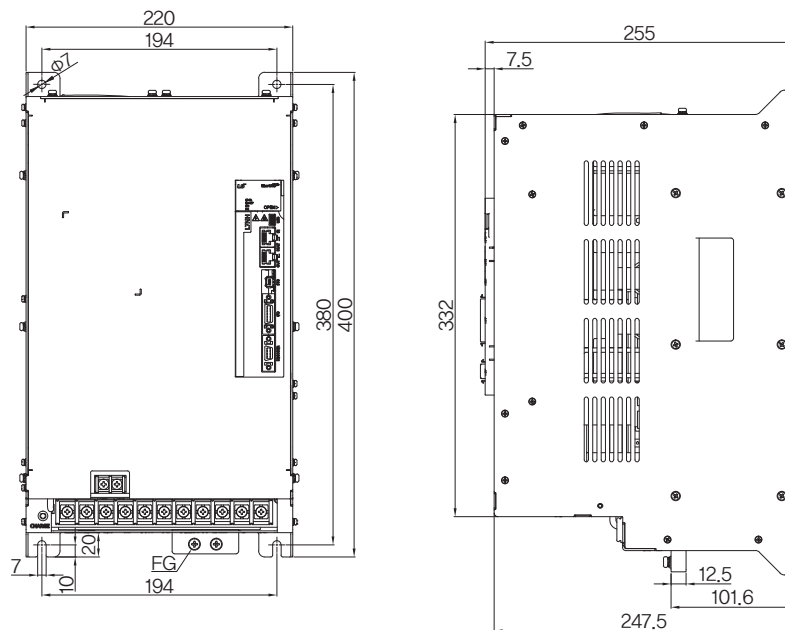


L7 SERIES SYSTEM

External Dimensions of L7NHB Drive

L7NHB150U [Weight : 15.5kg(Fan-Cooling included)]

*Unit [mm]



Indexer Function Type

L7P Series



Servo Drive Designation

L7	P	A	004	U	AA
Model Name	Communication	Input Power Supply	Capacity	Encoder Type	Option
Servo Series	Stand I/O & Index Type	A : 200VAC B : 400VAC	001 : 100W 002 : 200W 004 : 400W 008 : 750W 010 : 1.0kW 020 : 2.0kW 035 : 3.5kW	U : Universal	Exclusive Option Code

* Range
· 200V : 0.1kW~15kW
· 400V : 1.0kW~15kW

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7P Series

Characteristic

● Providing Program Function built-in single axis position determination module

- Supporting position control mode by pulse input
- Position control mode
- Possible to use without upper controller
- Modbus RTU Protocol (RS-422)

● Improved Control Performance

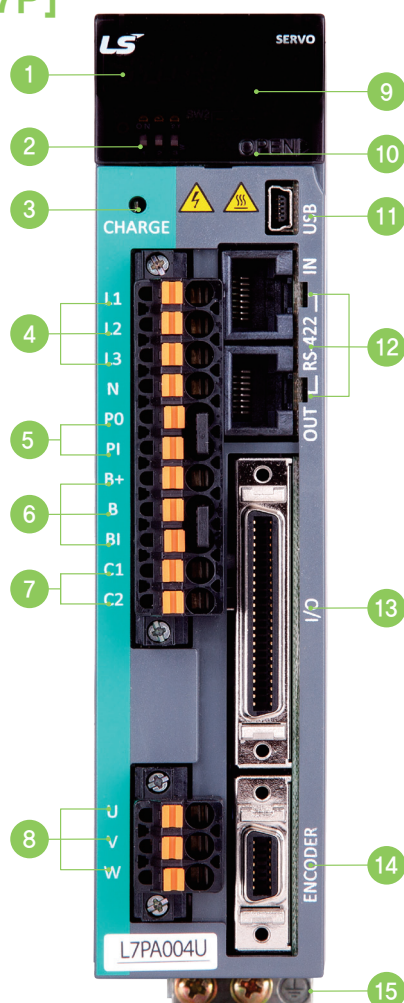
- Improved Control bandwidth
- Providing 4-step Notch-Filter
- Vibration control by Real-time FFT
- Real-time gain tuning function

● Support various motor and Encoder drive

- Supporting Rotary, DD and Motor drive (supporting 3rd party motor)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2

Identifying the Part of L7P Drive

[L7P]



- Display
- Dip Switch
- Charge Lamp
- Main Power Connector (L1, L2, L3)
- DC Reactor Connector (PO, PI) Short-Circuit When Not used
- Regenerative Resistor Connector (B+, B, BI)
 - Short-Circuit B, BI terminals when standard type
 - Use B+, B terminals when using external resistor
- Control Power connector (C1, C2)
- Motor power connector (U, V, W)
- Connector for analogue monitor
- Switch for node address setting
- USB connector (USB)
- RS-422 communication connector (In / Out)
- Control signal connector (I/O)
- Encoder Connector (ENCODER)
- PE (Protective Earth)

L7PA Drive Combination Table

L7PA Incremental Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable	Power Cable		
							For power	Power + Brake	Brake
3,000	5,000	□40	SAR3A	L7PA001U	* 2,048 P/R	APCS-E□□□AS	APCS-P□□□GS	APCS-B□□□QS	
		□40	SAR5A	L7PA001U					
		□40	SA01A	L7PA001U					
		□40	SA015A	L7PA002U					
		□60	SB01A	L7PA002U					
		□60	SB02A	L7PA002U					
		□60	SB04A	L7PA004U					
		□80	SC04A	L7PA004U					
		□80	SC06A	L7PA008U					
		□80	SC08A	L7PA008U					
		□80	SC10A	L7PA010U					
		□130	SE09A	L7PA008U					
		□130	SE15A	L7PA020U					
		□130	SE22A	L7PA020U					
		□130	SE30A	L7PA035U					
		□180	SF30A	L7PA035U					
		□180	SF50A	L7PA050U					
2,000	3,000	□80	SC03D	L7PA004U	* 3,000 P/R	APCS-E□□□AS	APCS-P□□□GS	APCS-B□□□QS	
		□80	SC05D	L7PA008U					
		□80	SC06D	L7PA008U					
		□80	SC07D	L7PA008U					
		□130	SE06D	L7PA008U					
		□130	SE11D	L7PA010U					
		□130	SE16D	L7PA020U					
		□130	SE22D	L7PA020U					
		□180	SF22D	L7PA020U					
		□180	LF35D	L7PA035U					
		□180	SF55D	L7PA050U					
		2,500	SF75D	L7PA075U					
		3,000	SG22D	L7PA020U					
		3,000	LG35D	L7PA035U					
		3,000	SG55D	L7PA050U					
		2,500	SG75D	L7PA075U					
1,500	2,000	□220	SG110D	L7PA150U	* 3,000 P/R	APCS-E□□□BS	APCS-P□□□GS	APCS-B□□□QS	
		□220	SG110D	L7PA150U					
		□130	SE05G	L7PA008U					
		□130	SE09G	L7PA010U					
		□130	SE13G	L7PA020U					
		□130	SE17G	L7PA020U					
		□180	SF20G	L7PA035U					
		3,000	SF44G	L7PA050U					
		2,500	SF60G	L7PA075U					
		2,000	SF75G	L7PA150U					
		2,700	LF30G	L7PA035U					
		3,000	SG20G	L7PA020U					
		2,700	LG30G	L7PA035U					
		2,500	SG60G	L7PA075U					
		2,500	SG85G	L7PA150U					
		2,000	SG110G	L7PA150U					
1,000	2,000	□220	SG150G	L7PA150U	* 3,000 P/R	APCS-E□□□BS	APCS-P□□□GS	APCS-B□□□QS	
		□220	SG150G	L7PA150U					
		□130	SE03M	L7PA004U					
		□130	SE06M	L7PA008U					
		□130	SE09M	L7PA010U					
		□130	SE12M	L7PA020U					
		□180	SF12M	L7PA020U					
		□180	SF20M	L7PA035U					
		1,700	LF30M	L7PA035U					
		2,000	SF44M	L7PA050U					
		2,000	SG12M	L7PA020U					
		2,000	SG20M	L7PA035U					
		1,700	LG30M	L7PA035U					
		2,000	SG44M	L7PA050U					
		2,000	SG60M	L7PA075U					
		2,000	SG150M	L7PA150U					
3,000	3,500	□60	HB01A	L7PA002U	* 1,048 P/R	APCS-E□□□AS	APCS-P□□□GS	APCS-B□□□QS	
		□60	HB02A	L7PA002U					
		□60	HB04A	L7PA004U					
		□130	HE09A	L7PA008U					
		□130	HE15A	L7PA020U	* 2,048 P/R	APCS-E□□□BS	APCS-P□□□HS	APCS-B□□□QS	
		□130	HE30A	L7PA050U					
		□130	HE09A	L7PA008U					
		□130	HE15A	L7PA020U					

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7PA Drive Combination Table

L7PA Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable		Power Cable					
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake			
3,000	5,000	□40	FALR5A	L7PA001U	* 18Bit Serial Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS		APCS-P□□□QS			
		□40	FAL01A	L7PA001U									
		□40	FAL015A	L7PA004U							APCS-P□□□FS		
		□60	FBL01A	L7PA001U									
		□60	FBL02A	L7PA002U									
		□60	FBL04A	L7PA004U									
		□80	FCL04A	L7PA004U									
		□80	FCL06A	L7PA008U									
		□80	FCL08A	L7PA008U									
		□80	FCL10A	L7PA010U									
		□60	FB01A	L7PA001U									
		□60	FB02A	L7PA002U									
		□60	FB04A	L7PA004U									
		□80	FC04A	L7PA004U									
		□80	FC06A	L7PA008U									
		□80	FC08A	L7PA008U									
		□80	FC10A	L7PA010U									
		□130	FE09A	L7PA010U									
		□130	FE15A	L7PA020U									
		□130	FE22A	L7PA020U									
□130	FE30A	L7PA035U											
□180	FF30A	L7PA035U											
□180	FF50A	L7PA050U											
2,000	3,000	□80	FCL03D	L7PA004U	* 19Bit Serial Abs	APCS-E□□□ES	APCS-E□□□ES1	APCS-P□□□LS		APCS-P□□□QS			
		□80	FCL05D	L7PA008U									
		□80	FCL06D	L7PA008U									
		□80	FCL07D	L7PA008U									
		□80	FC03D	L7PA004U									
		□80	FC05D	L7PA008U									
		□80	FC06D	L7PA008U									
		□80	FC07D	L7PA008U									
		□130	FE06D	L7PA008U									
		□130	FE11D	L7PA010U									
	□130	FE16D	L7PA020U										
	□130	FE22D	L7PA020U										
	□180	FF22D	L7PA020U										
	□180	FF35D	L7PA035U										
	□180	FF55D	L7PA050U										
	2,500	□180	FF75D	L7PA075U		APCS-P□□□HS	APCS-P□□□NB						
	3,000	□220	FG22D	L7PA020U									
		□220	FG35D	L7PA035U									
		□220	FG55D	L7PA050U									
		□220	FG75D	L7PA075U									
1,500	3,000	□220	FG110D	L7PA150U	APCS-E□□□DS	APCS-E□□□DS1	APCS-P□□□IS		APCS-P□□□SB				
		□130	FE05G	L7PA008U									
		□130	FE09G	L7PA010U									
		□130	FE13G	L7PA020U									
		□130	FE17G	L7PA020U									
	□180	FF20G	L7PA020U										
	2,700	□180	FF30G	L7PA035U			APCS-P□□□JS	APCS-P□□□LB					
	3,000	□180	FF44G	L7PA050U									
	2,500	□180	FF60G	L7PA075U									
	2,000	□180	FF75G	L7PA075U									
3,000	□220	FG20G	L7PA020U										
1,000	2,000	□220	FG30G	L7PA035U	APCS-P□□□OS	APCS-P□□□OS	APCS-P□□□IS		APCS-P□□□SB				
		□220	FG44G	L7PA050U									
		□220	FG60G	L7PA075U									
		□220	FG85G	L7PA150U									
		□220	FG110G	L7PA150U									
	1,700	□220	FG150G	L7PA150U			APCS-P□□□IMS	APCS-P□□□IMS		APCS-P□□□QS		APCS-P□□□SB	
		2,000	□130	FE03M									L7PA004U
			□130	FE06M									L7PA008U
			□130	FE09M									L7PA010U
			□130	FE12M									L7PA020U
2,000	□180	FF12M	L7PA020U										
	□180	FF20M	L7PA020U										
	□180	FF30M	L7PA035U										
	□180	FF44M	L7PA050U										
	□220	FG12M	L7PA020U										
2,000	2,000	□220	FG20M	L7PA020U									
		□220	FG30M	L7PA035U									
		□220	FG44M	L7PA050U									
		□220	FG60M	L7PA075U									
		□220	FG12M	L7PA020U									

L7PB Drive Combination Table

L7PB Incremental Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable	Power Cable									
					Quadrature Type	INC	For power	Power + Brake	Brake							
3,000	5,000	□130	SEP09A	L7PB010U	* 3,000 P/R	APCS-E□□□BS	APCF-P□□□HS	APCF-P□□□NB								
		□130	SEP15A	L7PB020U												
		□130	SEP22A	L7PB020U												
		□130	SEP30A	L7PB035U												
		□180	SFP30A	L7PB035U												
		□180	SFP50A	L7PB050U												
2,000	3,000	□130	SEP06D	L7PB010U			APCF-P□□□HS	APCF-P□□□NB								
		□130	SEP11D	L7PB010U												
		□130	SEP16D	L7PB020U												
		□130	SEP22D	L7PB020U												
		□180	SFP22D	L7PB020U												
		□180	SFP35D	L7PB035U												
		□180	SFP55D	L7PB050U												
		□180	SFP75D	L7PB075U												
		□220	SGP22D	L7PB020U												
		□220	SGP35D	L7PB035U												
		□220	SGP55D	L7PB050U												
	2,500	□220	SGP75D	L7PB075U			APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB							
		□220	SGP110D	L7PB150U												
		□220	SGP75D	L7PB075U						APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□SE				
		□220	SGP110D	L7PB150U												
1,500	3,000	□130	SEP05G	L7PB010U			APCF-P□□□HS	APCF-P□□□NB	APCF-P□□□IS	APCF-P□□□PB						
		□130	SEP09G	L7PB010U												
		□130	SEP13G	L7PB020U												
		□130	SEP17G	L7PB020U												
		□180	SFP20G	L7PB020U												
		□180	SFP30G	L7PB050U												
		□180	SFP44G	L7PB050U												
		□180	SFP60G	L7PB075U												
	2,500	□180	SFP75G	L7PB075U			APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB							
		□220	SGP20G	L7PB020U												
		□220	SGP30G	L7PB050U												
		□220	SGP44G	L7PB050U												
	3,000	□220	SGP60G	L7PB075U			APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB							
		□220	SGP85G	L7PB150U												
		2,500	□220	SGP110G							L7PB150U	APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB		
			□220	SGP150G							L7PB150U					
1,000	2,000		□130	SEP03M			L7PB010U	APCF-P□□□HS	APCF-P□□□NB	APCF-P□□□IS	APCF-P□□□PB					
			□130	SEP06M			L7PB010U									
		□130	SEP09M	L7PB010U												
		□130	SEP12M	L7PB020U												
		□180	SFP12M	L7PB020U												
		□180	SFP20M	L7PB020U												
	1,700	□180	SFP30M	L7PB035U			APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB							
		□180	SFP44M	L7PB050U												
	2,000	□220	SGP12M	L7PB020U			APCF-P□□□IS	APCF-P□□□PB	APCF-P□□□LB							
		□220	SGP20M	L7PB020U												
		□220	SGP30M	L7PB050U												
□220		SGP44M	L7PB050U													
□220		SGP60M	L7PB075U													
□220		SGP60M	L7PB075U													

L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

L7 SERIES SYSTEM

L7PB Drive Combination Table

L7PB Serial Type

Rated Speed (rpm)	Maximum Speed (rpm)	Flange Size	Applicable Motor	Applicable Drive	Standard Encoder Type	Encoder cable		Power Cable				
					Serial Type	Single Turn	Multi Turn	For power	Power + Brake	Brake		
3,000	5,000	□130	FEP09A	L7PB010U	* 19Bit Serial Abs	APCS-E□□□DS	APCS-E□□□DS1	APCF-P□□□HS	APCF-P□□□NB			
		□130	FEP15A	L7PB020U								
		□130	FEP22A	L7PB035U								
		□130	FEP30A	L7PB035U								
		□180	FFP30A	L7PB035U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP50A	L7PB050U				APCF-P□□□JS	APCF-P□□□LB			
2,000	3,000	□130	FEP06D	L7PB010U						APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP11D	L7PB010U								
		□130	FEP16D	L7PB020U								
		□130	FEP22D	L7PB020U								
		□180	FFP22D	L7PB020U								
		□180	FFP35D	L7PB035U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP55D	L7PB050U				APCF-P□□□JS	APCF-P□□□LB			
	2,500	□180	FFP75D	L7PB075U								APCF-P□□□SB
	3,000	□220	FGP22D	L7PB020U				APCF-P□□□IS				
	2,700	□220	FGP35D	L7PB035U								
	3,000	□220	FGP55D	L7PB050U				APCF-P□□□JS				
	2,500	□220	FGP75D	L7PB075U				APCF-P□□□MS				
		□220	FGP110D	L7PB150U								
1,500	3,000	□130	FEP05G	L7PB010U						APCF-P□□□HS	APCF-P□□□NB	
		□130	FEP09G	L7PB010U								
		□130	FEP13G	L7PB020U								
		□130	FEP17G	L7PB020U								
		□180	FFP20G	L7PB020U				APCF-P□□□IS	APCF-P□□□PB			
	2,700	□180	FFP30G	L7PB035U								APCF-P□□□LB
	3,000	□180	FFP44G	L7PB050U				APCF-P□□□JS				
	2,500	□180	FFP60G	L7PB075U				APCF-P□□□MS				
	2,200	□180	FFP75G	L7PB075U								
	3,000	□220	FGP20G	L7PB020U				APCF-P□□□IS				
	2,700	□220	FGP30G	L7PB035U								APCF-P□□□SB
	3,000	□220	FGP44G	L7PB050U				APCF-P□□□JS				
	2,500	□220	FGP60G	L7PB075U				APCF-P□□□MS				
		□220	FGP85G	L7PB150U								
	2,000	□220	FGP110G	L7PB150U								
□220	FGP150G	L7PB150U										
1,000	2,000	□130	FEP03M	L7PB010U								APCF-P□□□NB
		□130	FEP06M	L7PB010U								
		□130	FEP09M	L7PB010U								
		□130	FEP12M	L7PB020U								
		□180	FFP12M	L7PB020U				APCF-P□□□IS	APCF-P□□□PB			
		□180	FFP20M	L7PB020U								
	1,700	□180	FFP30M	L7PB035U						APCF-P□□□JS	APCF-P□□□LB	APCF-P□□□LB
	2,000	□180	FFP44M	L7PB050U						APCF-P□□□IS		
		□220	FGP12M	L7PB020U						APCF-P□□□JS		
		□220	FGP20M	L7PB020U								
		□220	FGP30M	L7PB050U								
		□220	FGP44M	L7PB050U								
		□220	FGP60M	L7PB075U						APCF-P□□□MS		

L7PA Drive Product Features

Item		Type Name	L7PA001U	L7PA002U	L7PA004U	L7PA008U	L7PA010U	L7PA020U	L7PA035U	L7PA050U	L7PA075U	L7PA0150U
Input Power	Main Power Supply	3-Phase AC 200~230[V](-15~10[%]), 50~60[Hz]										
	Control Power Supply	Single-Phase AC 200~230[V](-15~10[%]), 50~60[Hz]										
Rated Current[A]			1.4	1.7	3.0	5.2	6.75	13.5	16.7	32	39.4	76
Peak Current[A]			4.2	5.1	9.0	15.6	20.25	40.5	50.1	90.88	98.5	190
Encoder Type		Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2										
Control Performance	Speed Control Range	Maximum 1: 5000										
	Frequency Response	Maximum 1 [kHz] or above (When using 19bit Serial Encoder)										
	Speed Variation Ratio	±0.01 [%] or lower [when load changes between 0 and 100%] ±0.1[%] or lower [temperature 25 ±10℃]										
	Accel/Decel Time	Straight or S-curveacceleration/deceleration (0~10,000[ms], 0~1,000[ms] Unitconfigurable)										
	Input Frequency	1[Mpps], line drive / 200[kpps], Open Collectopr										
	Input Pulse Type	Symbol + Pulse Series, CW+CCW, A/B Phase										
RS422 Communication Specifications	Communication Specifications	ANSI/TIA/EIA-422 StandardSpecications										
	Communication Protocol	MODBUS-RTU										
	Connector	RJ45 x 2										
	Synchro Method	Asynchronous										
	Transmission Speed	9600 /19200/38400/57600 [bps] Can be configured at [0x3002]										
	Transmission Distance	Maximum 200 [m]										
	Power Consumption	100[mA] Less than										
	Terminating Resistance	Dip S/W(On/Off), Built-In 120Ω										
Input/Output Signal	Digital Input	Input voltage range: DC 12[V] ~ DC 24[V] Total 16 input channel (allocatable) 32 function inputs can be selectively allocated (*SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME, *HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, PCON, GAIN2, P_CL, N_CL, MODE, PAUSE, ABSRQ, JSTART, JDIR, PCLR, AOV, SPD1/LVSF1, SPD2/LVSF2, SPD3, PROBE1, PROBE2) * Basic allocationsignal.										
	Digital Output	Use rating: DC 24[V] ±10%, 120[mA] Total 8 input channel (allocatable) 19 function inputs can be selectively allocated (*ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±, ZSPD±, WARN±, INPOS2±, IOUT0±, IOUT1±, IOUT2± IOUT3±, IOUT4±, IOUT5±) * Standard Allocationsignal										
Analog Input/output	Analog input	Total 2 channels analogspeedoverrideinput(-10[V] ~ +10[V]) analogtorquecommand input(-10[V] ~ +10[V])										
	Analog output	Total 2 channels 15 function inputs can be selectively allocated										
USB Communciation	Protection	Firmware download, parametersetting, tuning, auxiliary function,parametercopy										
	Communication Specifications	Complies with USB 2.0 Full Speed Specifications										
	Connection Device	PC or USB storage media										
Built-in functions	Dynamic Braking	Standard built-in(activated by servoalarm or servo OFF)										
	Regenerative Braking	Built-in, external brake attachable										
	Display	7 Segment(5 DIGIT)										
	Setting Function	Drive node address can be set using rotary switch										
	Additional Function	Gaintuning, alarm history, JOG operation, origin search										
Environment	Protective Function	Excessive current, overload, excessive current limit, overheating, excessive voltage, low voltage, excessive speed, encoder fail, position following fail, current sensing fail										
	Temperature	0 ~ 50[℃] / -20 ~ 65 ℃										
	Humidity	Below 90[%]RH(avoid dew-condensation)										
	Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.										

L7 SERIES SYSTEM

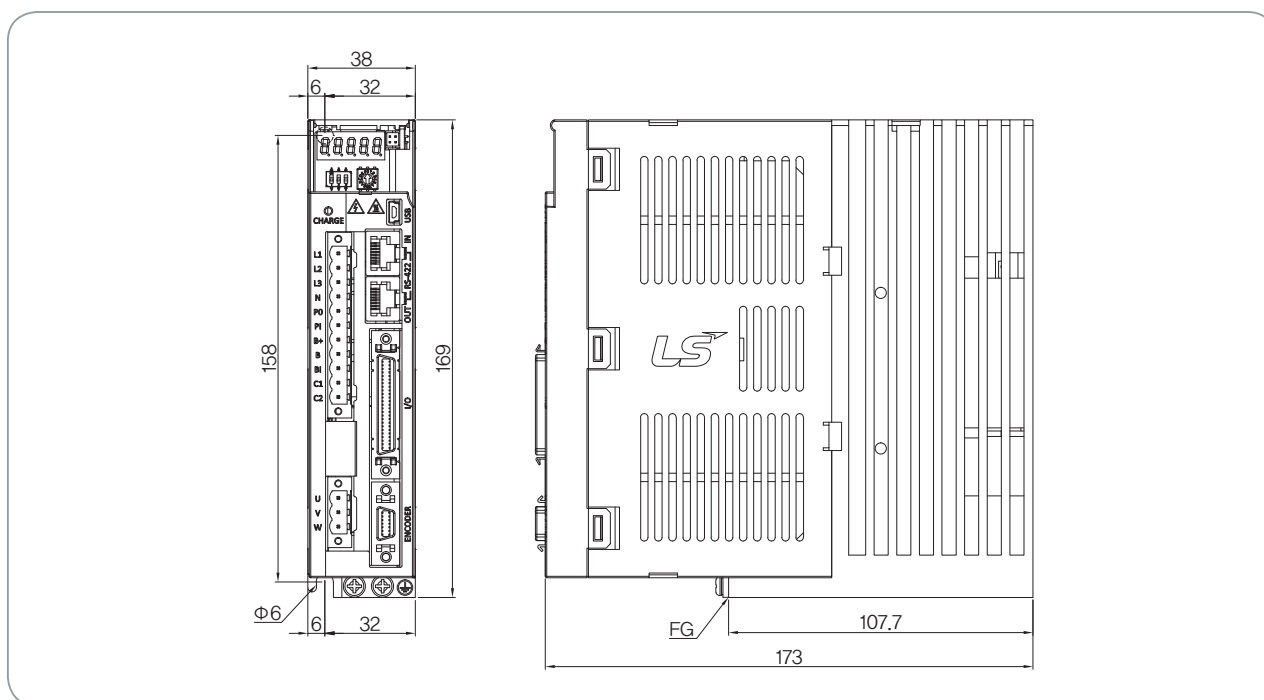
L7PB Drive Product Features

Item		Type Name	L7PB010U	L7PB020U	L7PB035U	L7PB050U	L7PB075U	L7PB150U
Input Power	Main Power Supply		3 Phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
	Control Power Supply		Single Phase AC380 ~ 480[V](-15 ~ +10[%]), 50 ~ 60[Hz]					
		Rated Current[A]	3.7	8	10.1	17.5	22.8	39
		Peak Current[A]	11.1	24	30.3	47.25	57	97.5
		Encoder Type	Universal Encoder Feedback Quadrature(Incremental) BiSS-B, BiSS-C(Absolute, Incremental) Tamagawa Serial(Absolute, Incremental) EnDat 2.2					
Control Performance	Speed Control Range		Maximum 1: 5000					
	Frequency Response		Maximum 1 [kHz] or above (When using 19bit Serial Encoder)					
	Speed Variation Ratio		±0.01 [%] or lower [when load changes between 0 and 100%] ±0.1[%] or lower [temperature 25 ±10℃]					
	Accel/Decel Time		Straight or S-curve acceleration/deceleration (0~10,000 [ms], possible to be set by one [ms] unit)					
	Input Frequency		1[Mpps], Line Driver / 200[kpps], Open Collector					
	Input Pulse Type		Symbol + Pulse Series, CW+CCW, A/B Phase					
RS422 Communication Specifications	Communication Specifications		ANSI/TIA/EIA-422 Standard Specifications					
	Communication Protocol		MODBUS-RTU					
	Connector		RJ45 x 2					
	Synchro Method		Asynchronous					
	Transmission Speed		9600 /19200/38400/57600 [bps] Can be configured at [0x3002]					
	Transmission Distance		Maximum 200 [m]					
	Power Consumption		100[mA] Less than					
	Terminating Resistance		Dip S/W(On/Off), Built-In 120Ω					
Input/Output Signal	Digital Input		Input voltage range: DC 12[V] ~ DC 24[V] Total 16 input channel (allocatable) 30 function inputs can be selectively allocated *SV_ON, *POT, *NOT, *A-RST, *START, *STOP, *REGT, *EMG, *HOME, *HSTART, *ISEL0, *ISEL1, *ISEL2, *ISEL3, *ISEL4, *ISEL5, *PCON, *GAIN2, *P_CL, *N_CL, *PAUSE, *ABS_RQ, *JSTART, *JDIR, *PCLR, *AOVR, *SPD1/LVSF1, *SPD2/LVSF2, *SPD3, *MODE * Basic allocationsignal.					
	Digital Output		Use rating: DC 24[V] ±10%, 120[mA] Total 8 input channel (allocatable) 19 function inputs can be selectively allocated *ALARM±, *READY±, *BRAKE±, *INPOS1±, *ORG±, *EOS±, *TGON±, *TLMT±, VLMT±, INSPD±, ZSPD±, WARN±, INPOS2±, IOUT0±, IOUT1±, IOUT2± IOUT3±, IOUT4±, IOUT5± * Basic allocationsignal.					
Analog Input/output	Analog input		Total 2 channels analog speed override input(-10[V] ~ +10[V]) analog torque command input(-10[V] ~ +10[V])					
	Analog output		Total 2 channels 15 function inputs can be selectively allocated					
USB Communication	Protection		Firmware download, parameter setting, tuning, auxiliary function, parameter copy					
	Communication Specifications		Complies with USB 2.0 Full Speed Specifications					
	Connection Device		PC or USB storage media					
Built-in functions	Dynamic Braking		Standard built-in(activated by servo alarm or servo OFF)					
	Regenerative Braking		Built-in, external brake attachable					
	Display		7 Segment(5 DIGIT)					
	Setting Function		Drive node address can be set using rotary switch					
	Additional Function		Gain tuning, alarm history, JOG operation, origin search					
Environment	Protective Function		Excessive current, overload, excessive current limit, overheating, excessive voltage, low voltage, excessive speed, encoder fail, position following fail, current sensing fail					
	Temperature		0 ~ 50 [°C] / -20 ~ 70 [°C]					
	Humidity		Below 80[%]RH(avoid dew-condensation) / Below 90[%]RH(avoid dew-condensation)					
Environment	Environment		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.					

External Dimensions of L7P Drive

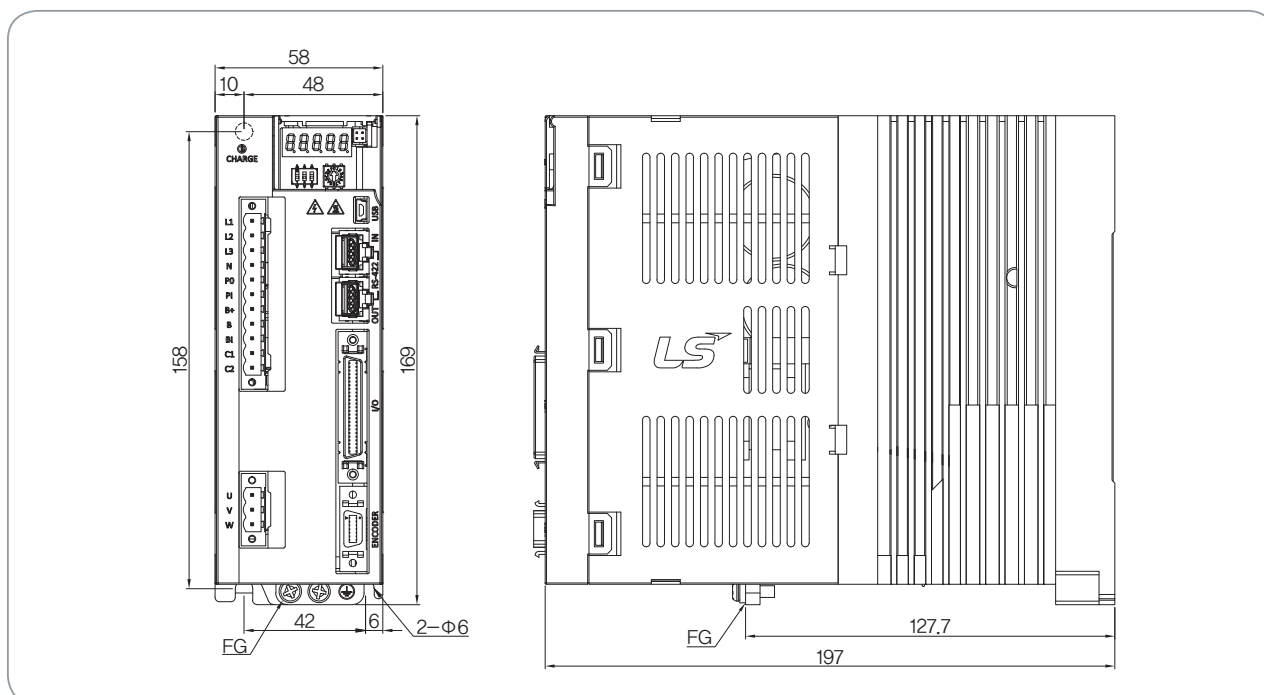
L7PA001U ~ L7PA004U [Weight : 1.0kg]

*Unit [mm]



L7PA008U / L7PA010U [Weight : 1.5kg(Fan-Cooling included)]

*Unit [mm]

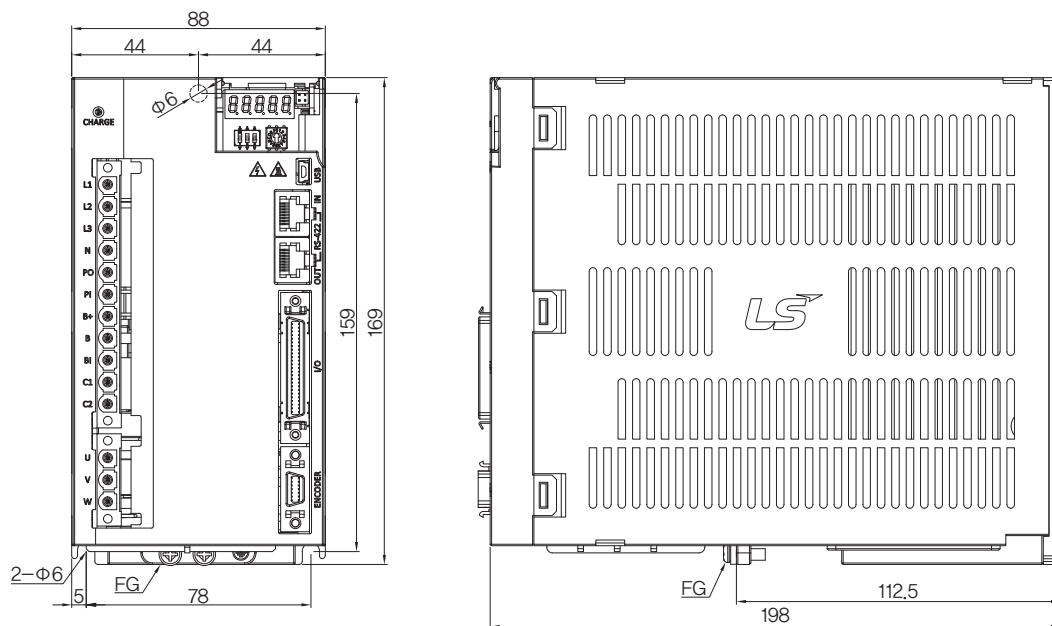


L7 SERIES SYSTEM

External Dimensions of L7PA Drive

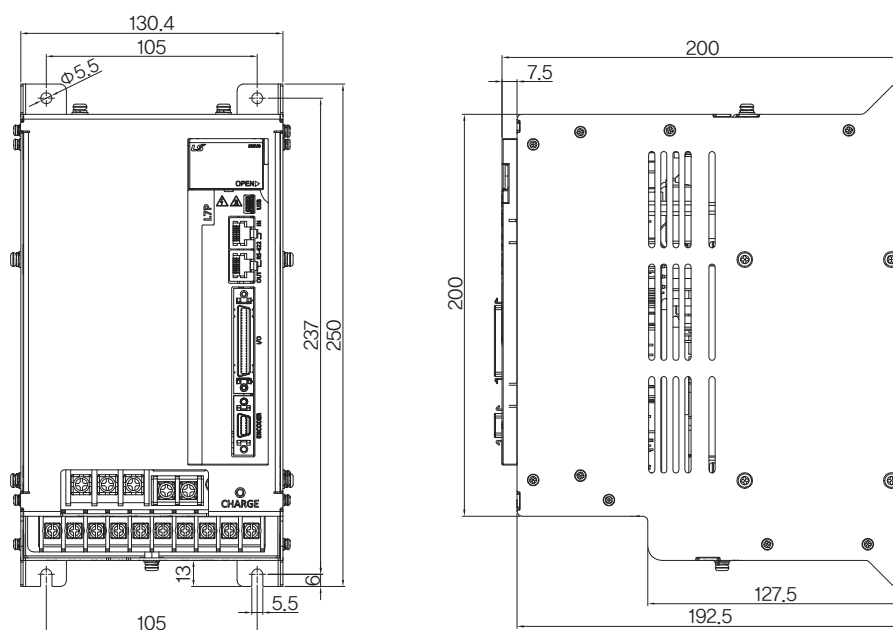
L7PA020U / L7PA035U [Weight : 2.5kg(Fan-Cooling included)]

*Unit [mm]



L7PA050U [Weight : 5.5kg(Fan-Cooling included)]

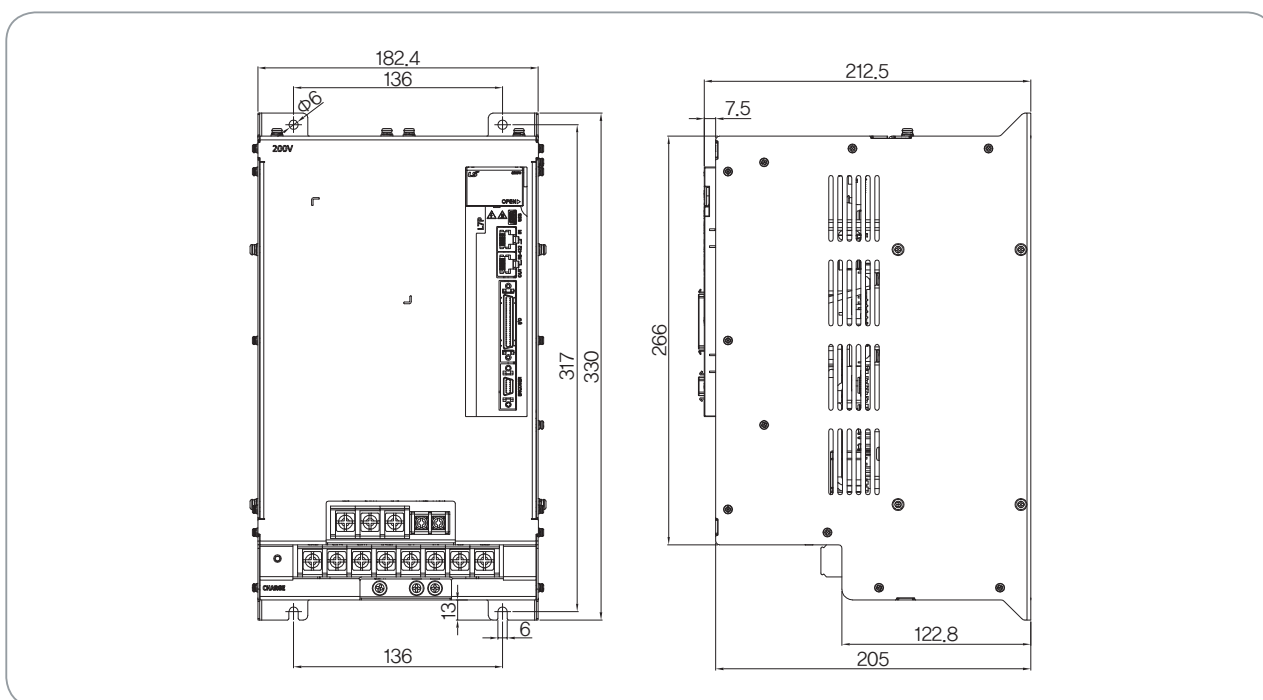
*Unit [mm]



External Dimensions of L7PA Drive

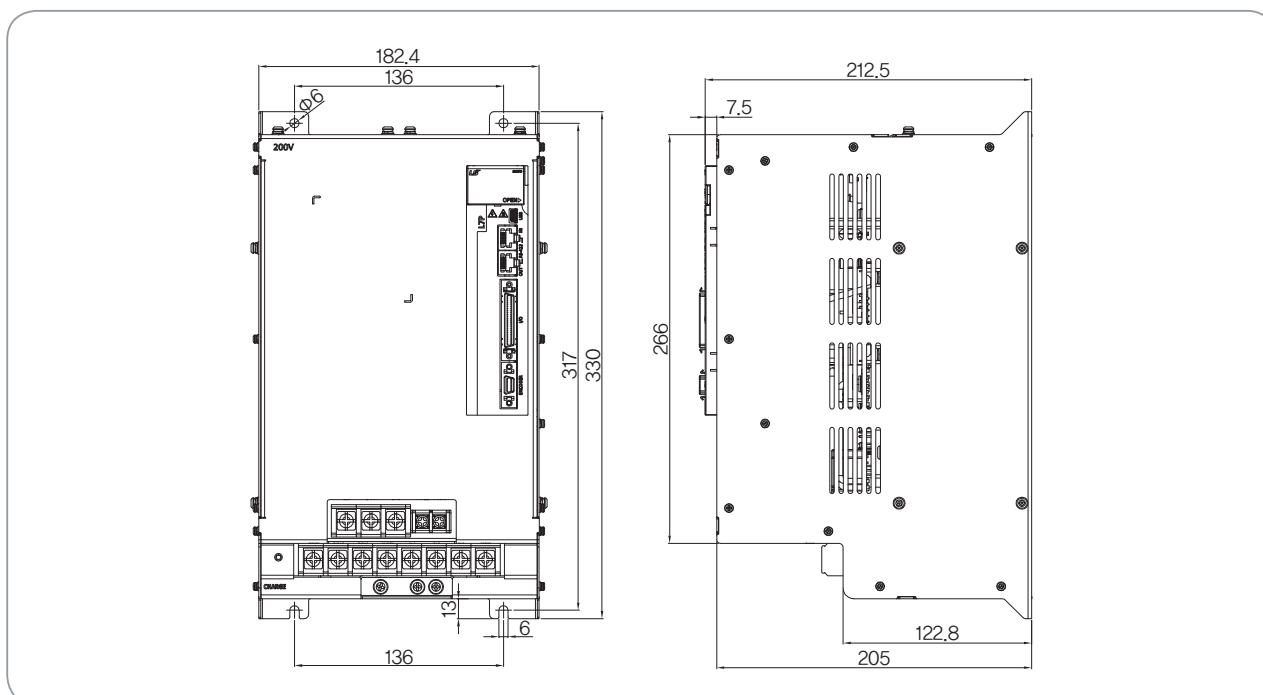
L7PA075U [Weight : 8.5kg(Fan-Cooling included)]

* Unit [mm]



L7PA150U [Weight : 16.2kg(Fan-Cooling included)]

* Unit [mm]

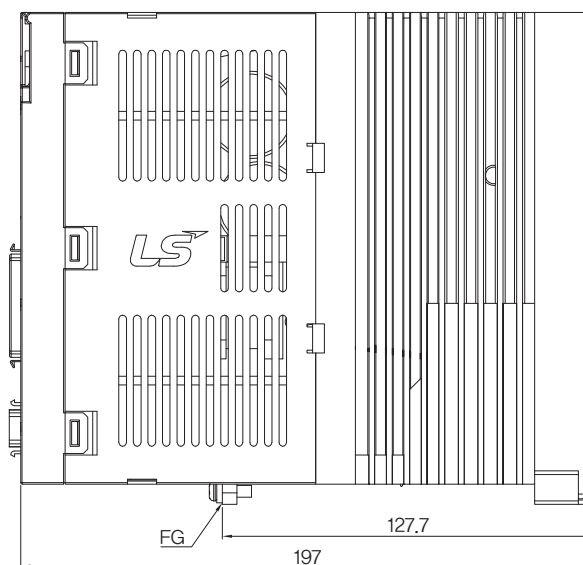
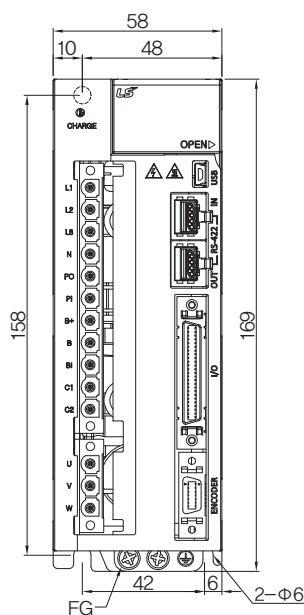


L7 SERIES SYSTEM

External Dimensions of L7PB Drive

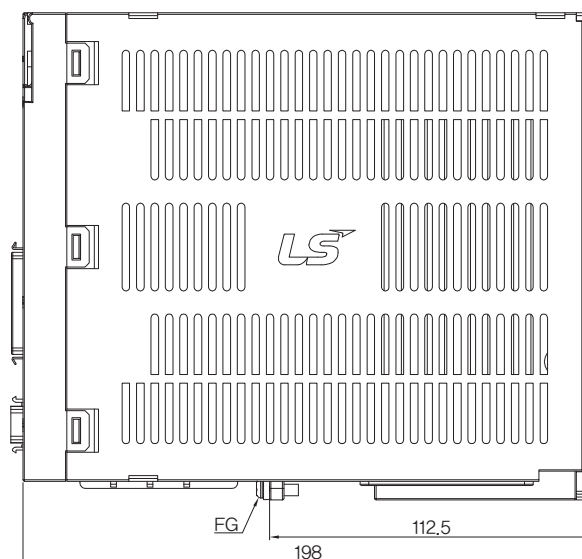
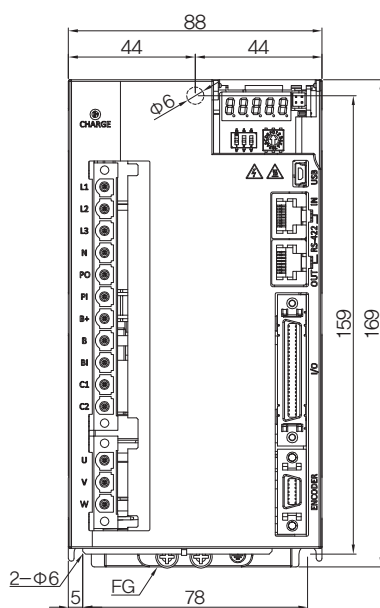
L7PB010U [Weight : 1.5kg(Fan-Cooling included)]

*Unit [mm]



L7PB020U / L7PB035U [Weight : 2.5kg(Fan-Cooling included)]

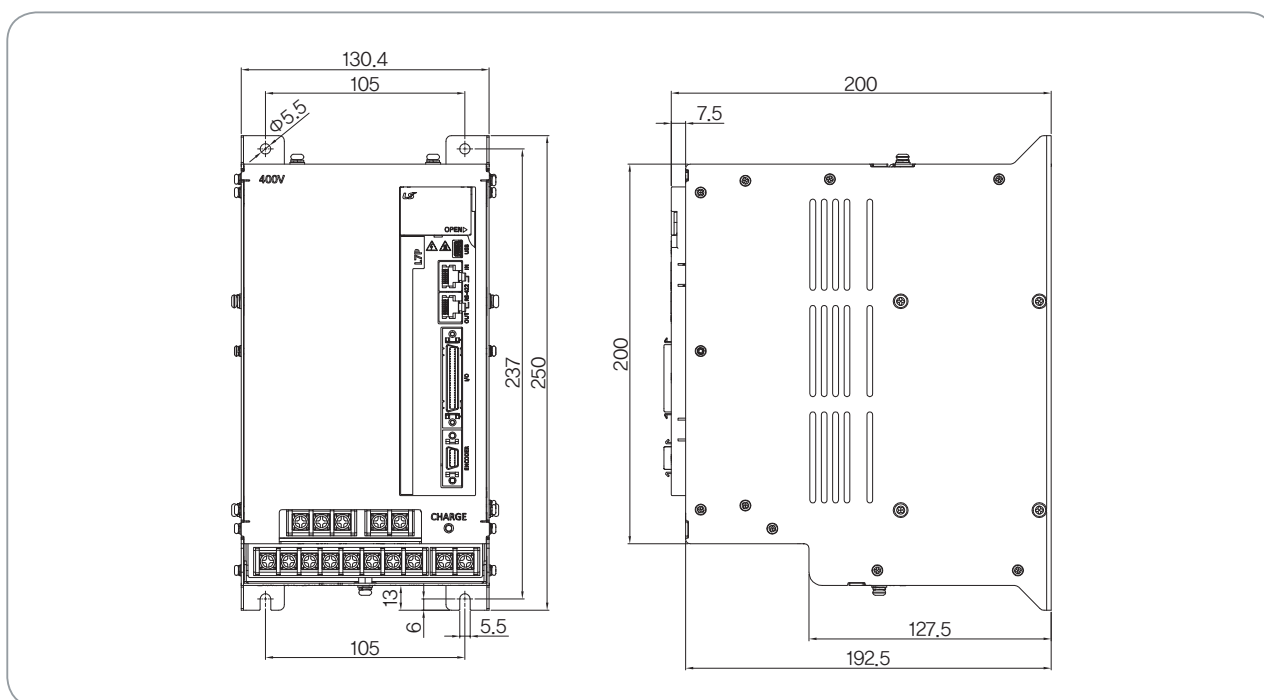
*Unit [mm]



External Dimensions of L7PB Drive

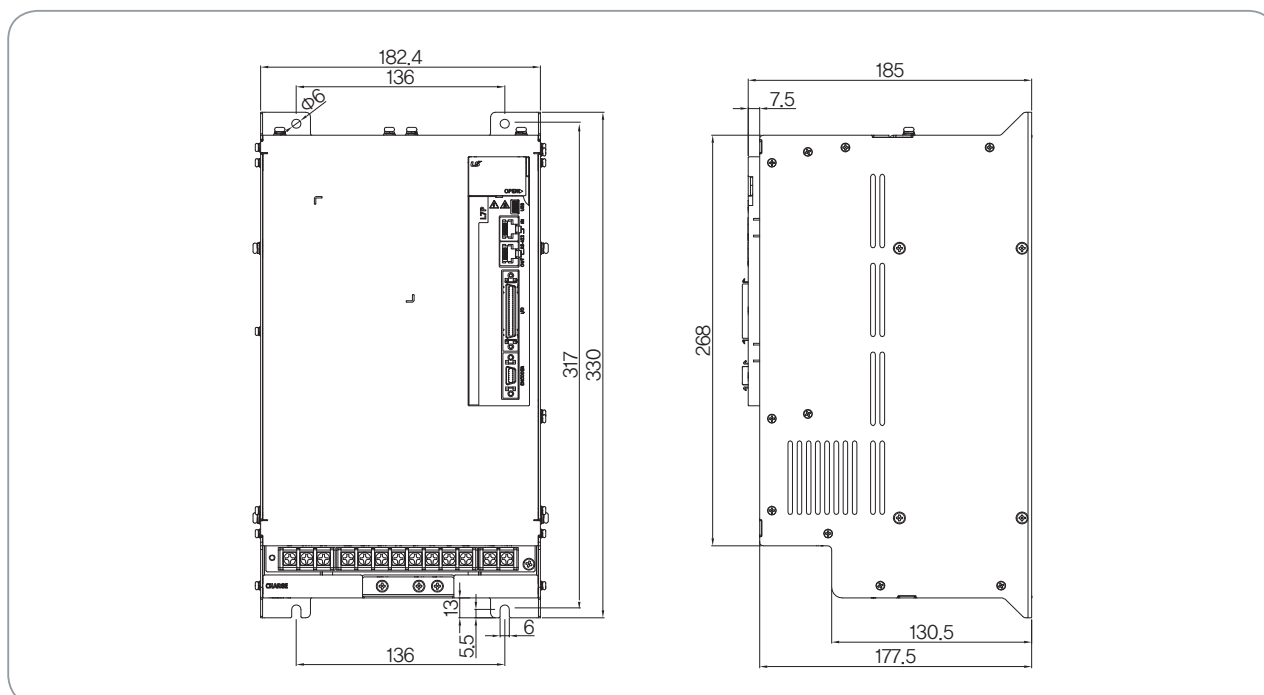
■ **L7PB050U** [Weight : 5.5kg(Fan-Cooling included)]

*Unit [mm]



L7PB075U [Weight : 8.5kg(Fan-Cooling included)]

*Unit [mm]

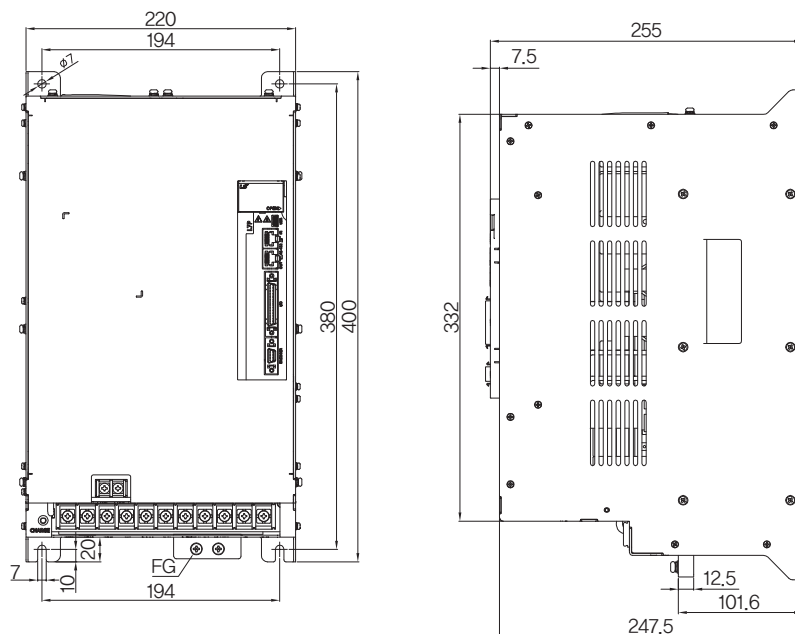


L7 SERIES SYSTEM

External Dimensions of L7PB Drive

L7PB150U [Weight : 15.5kg(Fan-Cooling included)]

*Unit [mm]



Contents

Servo Motor

S Series

Solid/Hollow Type Rotating Servo Motor

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- Product Feature _61
- External Dimensions _67



F Series

Flat Type Rotating Servo Motor

- Servo Motor Designation _72
- Product Feature _73
- External Dimensions _83



MDM Series

Direct-Drive Motor

- Servo Motor Designation _87
- Product Feature _88
- External Dimensions _93



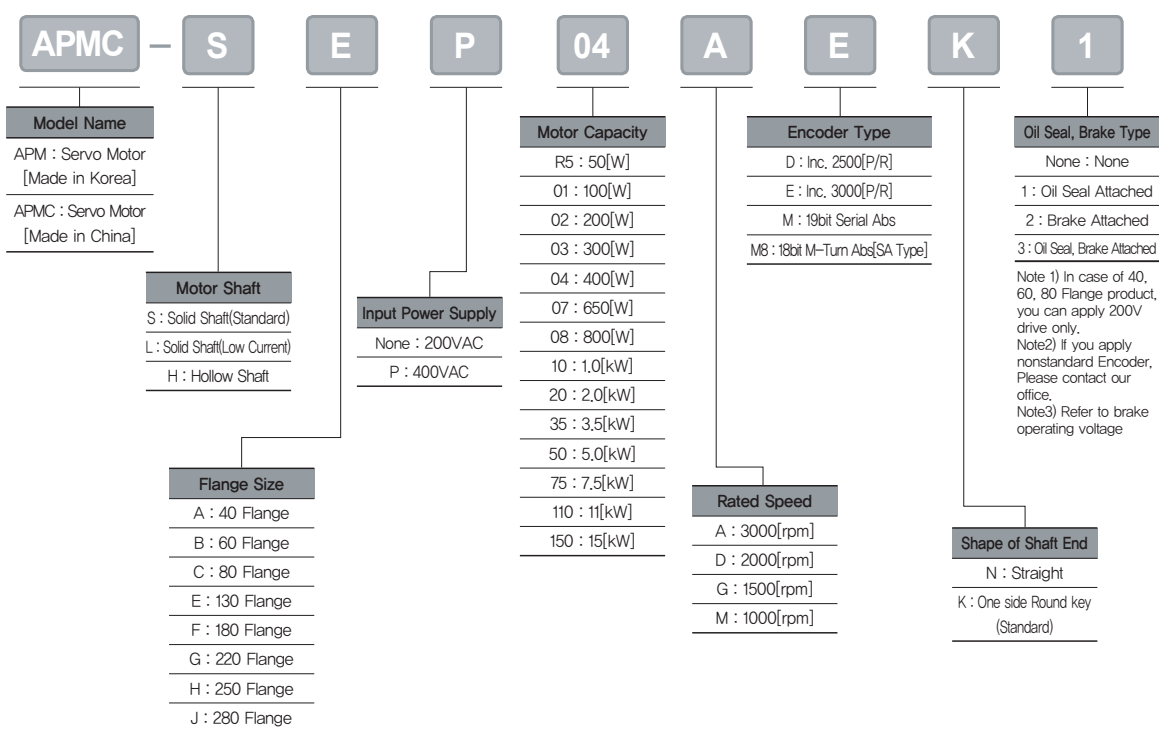
L7 SERIES SYSTEM

Solid/Hollow Type Rotating Servo Motor

S Series



Servo Motor Designation



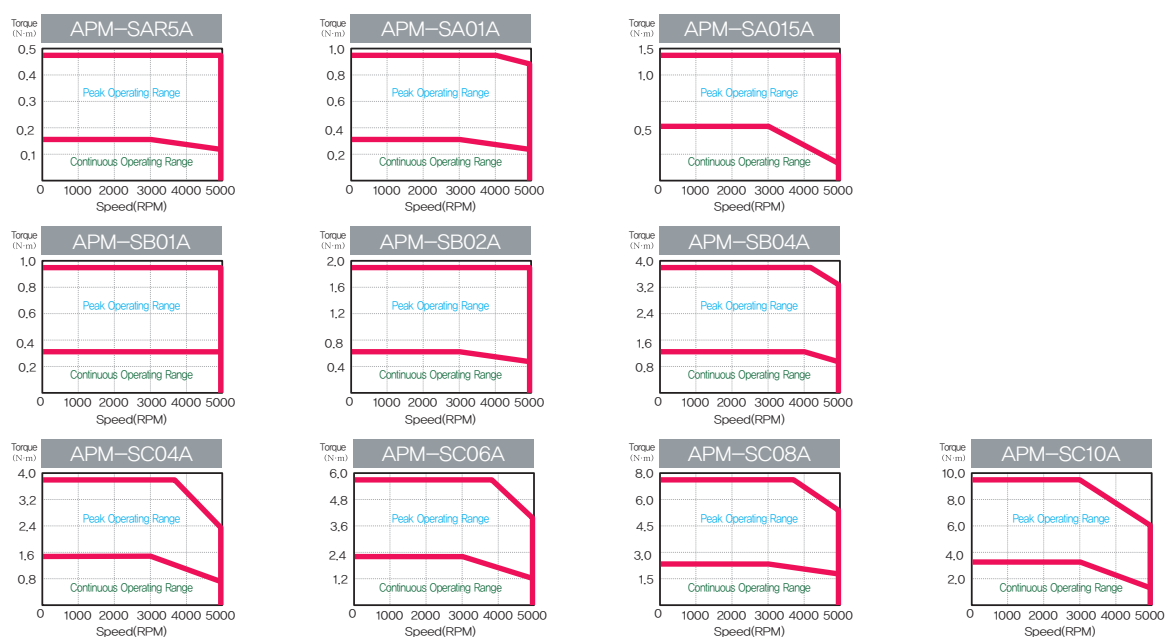
S Series Motor Characteristics (200V)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM-□□□□)		SAR5A	SA01A	SA015A	SB01A	SB02A	SB04A	SC04A	SC06A	SC08A	SC10A
Applicable Drive (L7□A□□)		L7□A001		L7□A002			L7□A004		L7□A008		L7□A010
Flange Size(□)		□40			□60			□80			
Rated Output	[kW]	0.05	0.1	0.15	0.1	0.2	0.4	0.4	0.6	0.8	1
Rated Torque	[N・m]	0.16	0.32	0.48	0.32	0.64	1.27	1.27	1.91	2.55	3.19
	[kgf・cm]	1.62	3.25	4.87	3.25	6.49	12.99	12.99	19.49	25.98	32.48
Instantaneous	[N・m]	0.48	0.96	1.43	0.96	1.91	3.82	3.82	5.73	7.64	9.56
Maximum Torque	[kgf・cm]	4.87	9.74	14.62	9.74	19.48	38.96	38.96	58.47	77.95	97.43
Rated Current	[A]	1.2	1.38	1.73	1.65	1.63	2.89	2.82	3.58	4.83	5.37
Max.Current	[A]	3.6	4.14	5.19	4.95	4.89	8.67	8.46	10.74	14.49	16.11
Rated Speed	[r/min]	3000									
Max. Speed	[r/min]	5000									
Inertia	[kg・m ² ×10 ⁻⁴]	0.02	0.05	0.06	0.11	0.18	0.32	0.67	1.09	1.51	1.93
	[gf・cm×s ²]	0.02	0.05	0.07	0.12	0.19	0.33	0.69	1.11	1.54	1.97
Allowable Load Inertia Ratio		30 times of motor inertia			20 times of motor inertia			15 times of motor inertia			
Rated Power Rate	[kW/s]	10.55	23.78	35.34	8.89	22.26	50.49	24.05	33.39	43.02	52.57
Speed/Position Detector	Standard(Note1)	Quad, Type Incremental 2048[P/R]				Quad, Type Incremental 3000[P/R]					
	Option	Serial Type 18[Bit]			Serial Type 19[Bit]						
Specifications & Features	Structure	Fully closed・Self cooling IP55 Note1)						Fully closed・Self cooling IP65 Note1)			
	Rated Time	Continuous									
	Ambient Temp	Operating：0～40[℃] Storage：-10～60[℃]									
	Ambient Humidity	20～80[%] (avoid dew-condensation)									
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.									
	E/V	Elevation/vibration 49[m/s ²](5G)									
Weight	[kg]	0.38	0.5	0.7	0.82	1.08	1.58	1.88	2.52	3.15	3.8

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

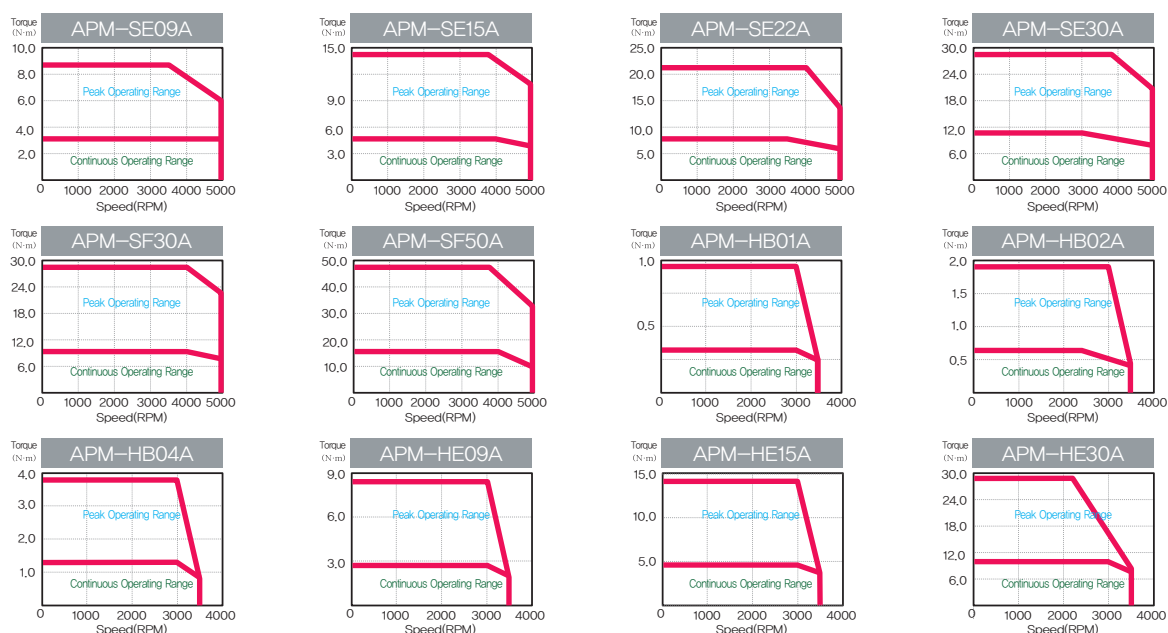
S Series Motor Characteristics (200V)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM-□□□□)		SE09A	SE15A	SE22A	SE30A	SF30A	SF50A	HB01A	HB02A	HB04A	HE09A	HE15A	HE30A
Applicable Drive (L7□A□□□)		L7□A008	L7□A020		L7□A035		L7□A050	L7□A002		L7□A004	L7□A008	L7□A020	L7□A050
Flange Size(□)		□130				□180		□60			□130		
Rated Output	[kW]	0.9	1.5	2.2	3	3	5	0.1	0.2	0.4	0.9	1.5	3
Rated Torque	[N・m]	2.86	4.77	7	9.55	9.55	15.91	0.32	0.64	1.27	2.86	4.77	9.55
	[kgf・cm]	29.23	48.72	71.45	97.43	97.43	162.38	3.25	6.49	12.99	29.23	48.72	97.43
Instantaneous Maximum Torque	[N・m]	8.59	14.32	21.01	28.64	28.64	47.74	0.96	1.91	3.82	8.59	14.32	28.64
	[kgf・cm]	87.69	146.15	214.35	292.29	292.29	487.15	9.74	19.48	38.96	87.69	146.15	292.29
Rated Current	[A]	4.95	8.23	11.98	17.16	16.7	27.4	1.65	1.63	2.89	4.95	8.23	17.16
Max.Current	[A]	14.85	24.69	35.94	51.48	50.1	82.2	4.95	4.89	8.67	14.85	24.69	51.48
Rated Speed	[r/min]	3000											
Max. Speed	[r/min]	5000						3500					
Inertia	[kg・m ² ×10 ⁻⁴]	6.66	12	17.34	22.68	30.74	52.13	0.27	0.33	0.46	19.56	22.27	31.81
	[gf・cm×s ²]	6.8	12.24	17.69	23.14	31.37	53.19	0.27	0.34	0.47	19.96	22.72	32.46
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia		20 times of motor inertia			10 times of motor inertia		
Rated Power Rate	[kW/s]	12.32	18.99	28.28	40.20	29.66	48.58	3.34	11.98	34.47	4.10	10.01	22.03
Speed/Position Detector	Standard(Note1)	Quad. Type Incremental 3000[P/R]						Quad. Type Incremental 1024[P/R]			Quad. Type Incremental 2048[P/R]		
	Option	Serial Type 19[Bit]						X					
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)						Fully closed・Self cooling IP55 Note1)					
	Rated Time	Continuous											
	Ambient Temp	Operating：0～40[℃] Storage：-10～60[℃]											
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)											
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.											
	E/V	Elevation/vibration 49[m/s2](5G)											
Weight	[kg]	5.5	7.5	9.7	11.8	12.4	17.7	0.9	1.2	1.7	5.8	7.4	

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



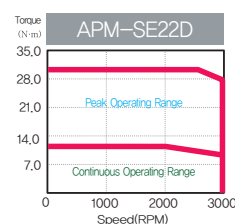
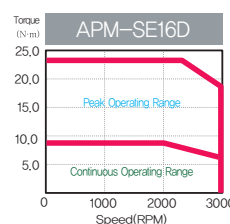
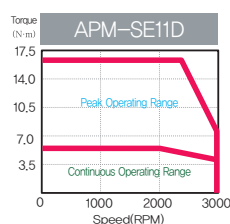
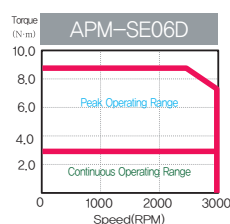
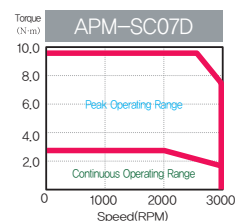
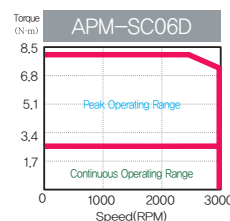
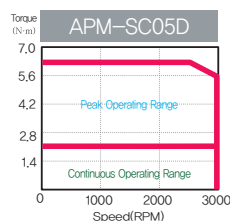
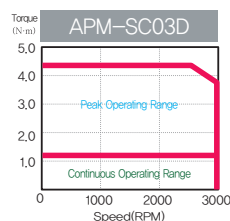
S Series Motor Characteristics (200V)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		SC03D	SC05D	SC06D	SC07D	SE06D	SE11D	SE16D	SE22D
Applicable Drive (L7□A□□)		L7□A004	L7□A008				L7□A010	L7□A020	
Flange Size(□)		□80				□130			
Rated Output	[kW]	0.3	0.45	0.55	0.65	0.6	1.1	1.6	2.2
Rated Torque	[N · m]	1.43	2.15	2.63	3.1	2.86	5.25	7.64	10.5
	[kgf · cm]	14.61	21.92	26.79	31.66	29.23	53.59	77.94	107.17
Instantaneous Maximum Torque	[N · m]	4.3	6.45	7.88	9.31	8.59	15.75	22.92	31.51
	[kgf · cm]	43.84	65.77	80.38	94.99	87.69	160.76	233.83	321.52
Rated Current	[A]	2.59	3.23	3.82	4.42	3.97	6.28	9.23	12.37
Max. Current	[A]	7.77	9.69	11.46	13.26	11.91	18.84	27.69	37.11
Rated Speed	[r/min]	2000							
Max. Speed	[r/min]	3000							
Inertia	[kg · m ² × 10 ⁻⁴]	0.67	1.09	1.51	1.93	6.66	12	17.34	22.68
	[gf · cm × s ²]	0.69	1.11	1.54	1.97	6.8	12.24	17.69	23.14
Allowable Load Inertia Ratio		15 times of motor inertia				10 times of motor inertia			
Rated Power Rate	[kW/s]	30.43	42.27	45.69	49.97	12.32	22.98	33.65	48.64
Speed/Position Detector	Standard(Note1)	Quande. Type Incremental 3000[P/R]							
	Option	Serial Type 19[Bit]							
Specifications & Features	Structure	Fully closed · Self cooling IP65 Note1)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]							
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)							
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.							
	E/V	Elevation/vibration 49[m/s ²](5G)							
Weight	[kg]	1.9	2.5	3.2	3.9	5.5	7.5	9.7	11.8

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

S Series Motor Characteristics (200V)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		SF22D	LF35D	SF55D	SF75D	SG22D	LG35D	SG55D	SG75D	SG110D
Applicable Drive (L7□A□□)		L7□A020	L7□A035	L7□A050	L7□A075	L7□A020	L7□A035	L7□A050	L7□A075	L7□A150
Flange Size(□)		□180				□220				
Rated Output	[kW]	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5	11
Rated Torque	[N・m]	10.5	16.71	26.26	35.81	10.5	16.71	26.26	35.81	52.5
	[kgf・cm]	107.17	170.5	267.93	365.36	107.2	170.52	267.9	365.4	535.9
Instantaneous	[N・m]	31.51	50.13	78.77	89.51	31.51	50.13	78.77	89.51	157.55
Maximum Torque	[kgf・cm]	321.52	511.51	803.8	913.41	321.52	511.51	803.8	913.4	1,607.60
Rated Current	[A]	13.5	15.85	30.25	34.6	12.3	16.05	30.25	35.49	51.39
Max.Current	[A]	40.5	47.55	90.75	86.5	36.9	48.15	90.75	88.73	154.17
Rated Speed	[r/min]	2000								
Max. Speed	[r/min]	3000			2500	3000			2500	
Inertia	[kg・m ² ×10 ⁻⁴]	30.74	52.13	83.6	121.35	51.42	80.35	132.41	172.91	291.36
	[gf・cm×s ²]	31,35	53.16	85.31	123.74	52.47	81.99	135.11	176.44	297.31
Allowable Load Inertia Ratio		5 times of motor inertia								
Rated Power Rate	[kW/s]	35.88	53.56	82.56	105.75	21.45	34.75	52.07	74.15	94.65
Speed/Position Detector	Standard(Note1)	Quad. Type Incremental 3000[P/R]								
	Option	Serial Type 19[Bit]								
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)								
	Rated Time	Continuous								
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]								
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)								
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.								
	E/V	Elevation/vibration 49[m/s ²](5G)								
Weight	[kg]	12.4	17.7	26.3	35.6	17	22	30.8	37.5	66.2

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



S Series Motor Characteristics (200V)

Motor Specifications [Rated 1500r/min]

Servo Motor (APM-□□□□)		SE05G	SE09G	SE13G	SE17G	SF20G	LF30G	SF44G	SF60G	SF75G	SG20G	LG30G	SG44G	SG60G	SG85G	SG110G	SG150G
Applicable Drive (L7□A□□)		L7□A008	L7□A010	L7□A020		L7□A035		L7□A050	L7□A075	L7□A150	L7□A020	L7□A035	L7□A050	L7□A075	L7□A150	L7□A150	L7□A150
Flange Size(□)		□130				□180				□220							
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6	7.5	1.8	2.9	4.4	6	8.5	11	15
Rated Torque	[N・m]	2.86	5.41	8.28	10.82	11.46	18.46	28.01	38.19	47.74	11.46	18.46	28.01	38.19	54.11	69.99	95.45
	[kgf・cm]	29.23	55.21	84.44	110.42	116.92	188.37	285.8	389.7	487.2	116.92	188.37	285.8	389.7	552.1	714.2	974
Instantaneous Maximum Torque	[N・m]	8.59	16.23	24.83	32.46	34.37	55.38	78.43	95.48	119.35	34.47	55.38	78.43	95.48	162.32	209.97	238.63
	[kgf・cm]	87.69	165.63	253.32	331.26	350.75	565.1	800.35	974.3	1,217.90	350.8	565.1	800.35	974.3	1,656.30	2,142.60	2,435
Rated Current	[A]	3.97	6.47	10	12.75	14.7	15.92	31.75	38	45.6	13.1	16.19	31.5	38	52.94	59.3	75.6
Max.Current	[A]	11.91	19.41	30	38.25	44.1	47.64	88.9	91.75	114	39.3	48.57	88.9	102	158.82	177.9	189
Rated Speed	[r/min]	1500															
Max. Speed	[r/min]	3000				3000	2700	3000	2500	2500	3000	2700	3000	2500	2500	2000	2000
Inertia	[kg・m ² ×10 ⁻⁴]	6.66	12	17.34	22.68	30.74	52.13	83.6	121.35	143.82	51.42	80.35	132.41	172.91	291.36	291.36	424.57
	[gf・cm×s ²]	6.8	12.24	17.69	23.14	31.37	53.19	85.31	123.83	146.76	52.47	81.99	135.11	176.44	297.31	297.31	416.08
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia											
Rated Power Rate	[kW/s]	12.32	24.4	39.49	51.63	42.71	65.37	93.83	120.21	158.47	25.53	42.41	59.24	84.36	100.48	168.27	223.44
Speed/Position Detector	Standard(Note1)	Quad. Type Incremental 3000[P/R]															
	Option	Serial Type 19[Bit]															
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)															
	Rated Time	Continuous															
	Ambient Temp	Operating：0～40[℃] Storage：-10～60[℃]															
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)															
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.															
	E/V	Elevation/vibration 49[m/s ²](5G)															
Weight	[kg]	5.5	7.5	9.7	11.8	12.4	17.7	26.3	35.6	39.4	17	22	30.8	37.52	66.2	66.3	92.2

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

S Series Motor Characteristics (200V)

Motor Specifications [Rated 1000r/min]

Servo Motor (APM-□□□□)	SE03M	SE06M	SE09M	SE12M	SF12M	SF20M	LF30M	SF44M	SG12M	SG20M	LG30M	SG44M	SG60M
Applicable Drive (L7□A□□)	L7□A004	L7□A008	L7□A010	L7□A020	L7□A035	L7□A050	L7□A020	L7□A035	L7□A050	L7□A075	L7□A075	L7□A075	L7□A075
Flange Size(□)	□130				□180				□220				
Rated Output [kW]	0.3	0.6	0.9	1.2	1.2	2	3	4.4	1.2	2	3	4.4	6
Rated Torque	[N · m]	2.86	5.73	8.59	11.46	11.46	19.1	28.64	42.01	11.46	19.1	28.64	42.01
	[kgf · cm]	29.23	58.46	87.69	116.92	116.92	194.86	292.29	428.69	116.92	194.86	292.29	428.69
Instantaneous Maximum Torque	[N · m]	8.59	17.19	25.78	34.37	34.37	57.29	85.93	117.63	34.37	57.29	85.93	117.63
	[kgf · cm]	87.69	175.3	263.06	350.75	350.75	584.58	876.88	1,200.26	350.75	584.58	876.88	1,200.26
Rated Current [A]	2.51	4.15	5.78	7.63	8.4	14.4	15.6	31.24	8.87	15.02	16.42	31.83	38
Max. Current [A]	7.53	12.45	17.34	22.89	25.2	43.2	46.8	87.47	26.61	45.06	49.26	89.12	98.3
Rated Speed [r/min]	1000												
Max. Speed [r/min]	2000				1700				2000		1700	2000	
Inertia	[kg · m ² × 10 ⁻⁴]	6.66	12	17.34	22.68	30.74	52.13	83.6	121.35	51.42	80.35	132.41	172.91
	[gf · cm × s ²]	6.8	12.24	17.69	23.14	31.37	53.19	85.31	123.83	52.47	81.99	135.11	176.44
Allowable Load Inertia Ratio	10 times of motor inertia				5 times of motor inertia								
Rated Power Rate [kW/s]	12.32	27.35	42.59	57.89	42.71	69.95	98.15	145.45	25.53	45.39	61.97	102.08	112.65
Speed/Position Detector	Standard(Note1)	Quad. Type Incremental 3000[P/R]											
	Option	Serial Type 19[Bit]											
Specifications & Features	Structure	Fully closed · Self cooling IP65 (Note1)											
	Rated Time	Continuous											
	Ambient Temp	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]											
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)											
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.											
Weight	E/V	Elevation/vibration 49[m/s ²](5G)											
	[kg]	5.5	7.5	9.7	11.8	12.4	17.7	26.3	35.6	17	22	30.8	37.5

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



External Dimensions of S Series Motor

SA Series

Plug Specifications

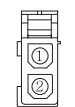
[Power]


Spec. : 172167-1
(Made by AMP)

Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green	Ground

(Power Connector Pin Table)

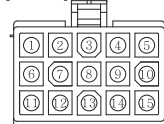
[Brake]


Spec. : 172165-1
(Made by AMP)

Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



Spec. : 172171-1(Made by AMP)

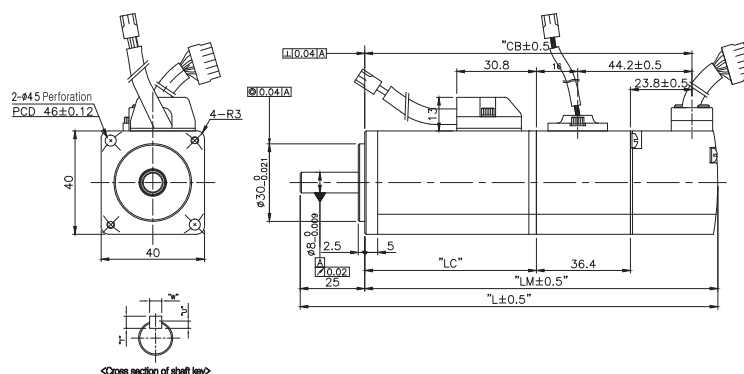
Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	A	10	V
3	B	11	W
4	B	12	W
5	Z	13	+5V
6	Z	14	0V
7	U	15	SHIELD
8	U		

(Parallel Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

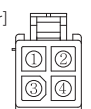
Note4) Refer to page 24 for serial encoder pin table.


Model	External Dimensions				Key			Weight(kg)
	L	LM	LC	CB	T	W	U	
SAR3A	101.3(137.6)	76.3(112.6)	42.5(42.4)	66.3(102.3)	5	5	1.8	0.32(0.67)
SAR5A	108.3(144.6)	83.3(119.6)	49.5(49.4)	73.3(109.3)				0.38(0.73)
SA01A	125.3(161.6)	100.3(136.6)	66.5(66.4)	90.3(126.6)				0.5(0.85)
SA015A	145.3	120.3	86.5	110.3				0.7

SB Series

Plug Specifications

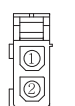
[Power]


Spec. : 172167-1
(Made by AMP)

Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green	Ground

(Power Connector Pin Table)

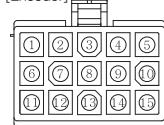
[Brake]


Spec. : 172165-1
(Made by AMP)

Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



Spec. : 172171-1(Made by AMP)

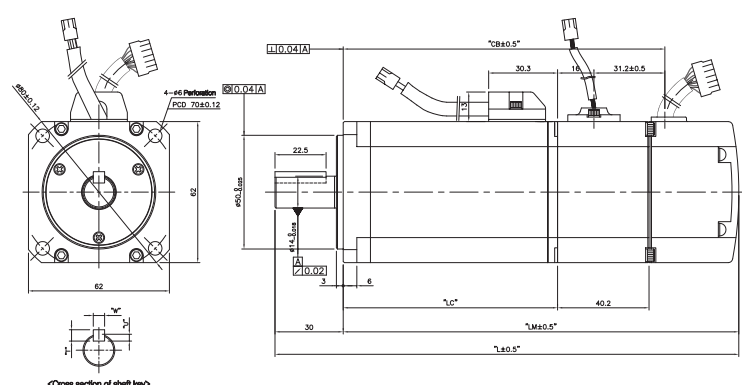
Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	A	10	V
3	B	11	W
4	B	12	W
5	Z	13	+5V
6	Z	14	0V
7	U	15	SHIELD
8	U		

(Parallel Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

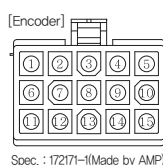
Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

Note4) Refer to page 24 for serial encoder pin table.


Model	External Dimensions				Key			Weight(kg)
	L	LM	LC	CB	T	W	U	
SB01A	122(162)	92(132)	52.5(52.3)	59.5(99.5)	5	5	3	0.82(1.4)
SB02A	136(176)	106(146)	66.5(66.3)	73.5(113.5)				1.08(1.66)
SB04A	164(204)	134(174)	94.5(94.3)	101.5(141.5)				1.58(2.16)

External Dimensions of S Series Motor

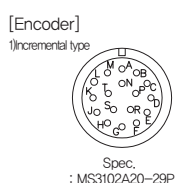
Plug Specifications



Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	$\overline{A}$	10	$\overline{V}$
3	B	11	W
4	$\overline{B}$	12	$\overline{W}$
5	Z	13	+5V
6	$\overline{Z}$	14	0V
7	U	15	SHIELD
8	$\overline{U}$		

SE Series

Plug Specifications



Pin No.	Signal	Pin No.	Signal
A	A	M	V
B	$\bar{A}$	N	$\bar{V}$
C	B	P	W
D	$\bar{B}$	R	$\bar{W}$
E	Z	H	+5V
F	$\bar{Z}$	G	0V
K	U	J	SHIELD
L	$\bar{U}$		

(Parallel Encoder Connector Pin Table)

Technical drawing of the 2000 series motor, showing front, side, and cross-section views with dimensions.

Front View:

- Overall width: 80
- Overall height: 80
- Mounting feet: 4- $\phi 6.6$ Perforation
- Perforation dimensions: $\phi 6.6$, 20 ± 0.12
- Terminal box mounting angle: 10 ± 0.15

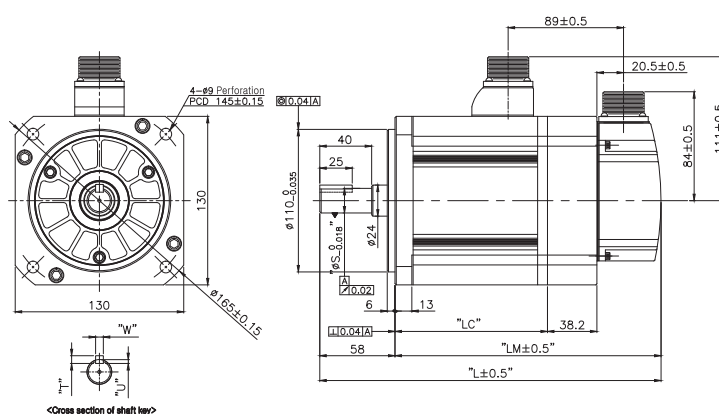
Side View:

- Terminal box width: 34.3
- Terminal box height: 27.8
- Terminal box mounting angle: 20 ± 0.5
- Motor body width: 40.5
- Motor body length: 40
- Motor body diameter: $\phi 72.8$
- Motor body length (excluding terminal box): 40.5
- Motor body length (including terminal box): 74.0
- Motor body length (including terminal box and mounting feet): 140.5
- Motor body length (including terminal box and mounting feet, excluding terminal box): 74.0
- Motor body length (including terminal box and mounting feet, excluding terminal box, excluding mounting feet): 40
- Motor body length (including terminal box and mounting feet, excluding terminal box, excluding mounting feet, excluding mounting feet): 3
- Motor body length (including terminal box and mounting feet, excluding terminal box, excluding mounting feet, excluding mounting feet, excluding mounting feet): 10
- Motor body length (including terminal box and mounting feet, excluding terminal box, excluding mounting feet, excluding mounting feet, excluding mounting feet, excluding mounting feet): 74.0
- Motor body length (including terminal box and mounting feet, excluding terminal box, excluding mounting feet, excluding mounting feet, excluding mounting feet, excluding mounting feet, excluding mounting feet): 140.5

Cross section of shaft (mm):

- Shaft diameter: $\phi 10$
- Shaft length: 10
- Shaft diameter (excluding keyway): $\phi 10.02$
- Keyway width: 3
- Keyway depth: 10
- Keyway diameter: $\phi 6.8$
- Keyway length: 10
- Keyway diameter (excluding keyway): $\phi 10.02$
- Keyway diameter (excluding keyway, excluding keyway): 40
- Keyway diameter (excluding keyway, excluding keyway, excluding keyway): 74.0
- Keyway diameter (excluding keyway, excluding keyway, excluding keyway, excluding keyway): 140.5

Model	External Dimensions					Key			Weight(kg)
	L	LM	LC	CB	S	T	W	U	
SC04A, SC03D	158.5(199.8)	118.5(158.8)	79(78.8)	86(126.3)	14	5	5	3	1.88(2.92)
SC06A, SC05D	178.5(218.8)	138.5(178.8)	99(98.8)	106(146.3)	16				2.52(3.56)
SC08A, SC06D	198.5(238.8)	158.5(198.8)	119(118.8)	126(166.3)	16				3.15(4.22)
SC10A, SC07D	218.5(258.8)	178.5(218.8)	139(138.8)	146(186.3)	16				3.80(4.94)



Model	External Dimensions				Key				Weight(kg)
	L	LM	LC	S	T	W	U		
SE09A, SE06D, SE05G, SE03M	201,3(239,3)	143,3(181,3)	93,8(93,6)	19	5	5	3	5,5(7,04)	
SE15A, SE11D, SE09G, SE06M	225,3(263,3)	167,3(205,3)	117,8(117,6)					7,5(9,08)	
SE22A, SE16D, SE13G, SE09M	249,3(287,3)	191,3(229,3)	141,8(141,6)	22	6	6	3,5	9,6(11,22)	
SE30A, SE22D, SE17G, SE12M	273,3(311,3)	215,3(253,3)	165,8(165,6)					11,7(13,32)	

External Dimensions of S Series Motor

■ SF, LF Series

| Plug Specifications |

[Power]		Spec. : MS3102A22-22P (Standard)
		Spec. : MS3102A24-10P (Brake-attached type)
[Encoder]		Spec. : MS3102A20-29P (Parallel Encoder Connector Pin Table)
		Spec. : MS3102A20-29P (Parallel Encoder Connector Pin Table)

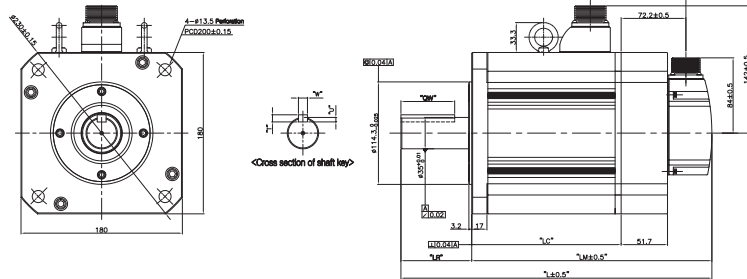
Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type, Please kindly contact us separately.

Note4) Refer to page 24 for serial encoder pin table.

Note5) Use MS3102A32-17 for SF75G Power connector.



Model	External Dimensions				Key					Weight(kg)
	L	LM	LC	LR	S	QW	T	W	U	
SF30A, SF22D, SF20G, SF12M	261.5(312.9)	182.5(233.9)	133(132.7)							12.4(19.2)
SF50A, LF35D, LF30G, SF20M	295.5(346.9)	216.5(267.9)	167(166.7)							17.7(24.9)
SF55D, SF44G, LF30M	345.5(396.9)	266.5(317.9)	217(216.7)	79	35 ^{+0.01} ₀	60	8	10	5	26.3(33.4)
SF75D, SF60G, SF44M	405.5(456.9)	326.5(377.9)	277(276.7)							35.6(42.8)
SF75G	457.5	344.5	295	113	42 ⁰ _{-0.016}	96	8	12	5	39.4

■ SG, LG Series

| Plug Specifications |

[Power]		Spec. : MS3102A22-22P (Standard)
		Spec. : MS3102A14S-7P (Brake-attached type)
[Bracket]		Spec. : MS3102A20-29P (Parallel Encoder Connector Pin Table)
		Spec. : MS3102A20-29P (Parallel Encoder Connector Pin Table)

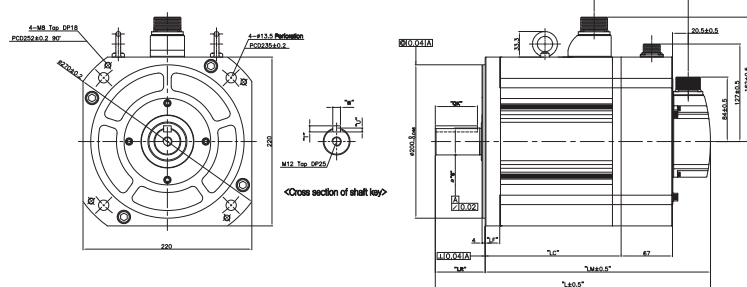
Note1) In case of SG, use DC[90V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type, Please kindly contact us separately.

Note4) Refer to page 24 for serial encoder pin table.

Note5) Use MS3102A32-17 for SG60M Power connector.



Model	External Dimensions						Key					Power Connector
	L	LM	LC	LR	LF	LQ	S	QK	T	W	U	
SG22D, SG20G, SG12M	236.5(302.7)	171.5(237.7)	122(121.2)									MS3102A22-22P
LG35D, LG30G, SG20M	256.5(322.7)	191.5(257.7)	142(142.2)									
SG55D, SG44G, LG30M	292.5(358.7)	227.5(293.7)	178(177.2)	65	19	56.4(122.6)	35 ⁰ _{-0.016}	55	8	10	5	
SG75D, SG60G, SG44M	320.5(386.7)	255.5(321.7)	206(205.2)									
SG110D, SG85G, SG60M	418.5(484.7)	353.5(419.7)	304(303.2)	65	21		45 ⁰ _{-0.015}					
SG110G, SG110G	469	354	304	115	21	66(132.2)	42 ⁰ _{-0.016}	96	10	12	5	MS3102A32-17P
SG150G, SG150G	575	459	409	115	35		55 ^{+0.030} _{-0.06}	96	10	16	6	

L7 SERIES SYSTEM

External Dimensions of S Series Motor

HB Series [Hollow Shaft type]

Plug Specifications

[Power]

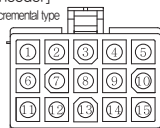


Spec.
: 172167-1
(Made by AMP)

Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
4	Green	Ground

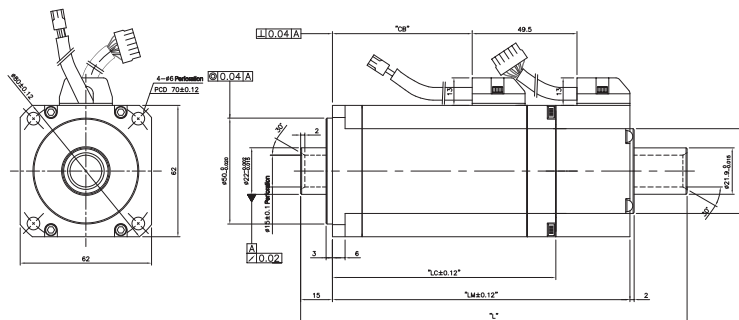
(Power Connector Pin Table)

[Encoder]
1 Incremental type



Spec. : 172171-1 (Made by AMP) (Parallel Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	A	10	V
3	B	11	W
4	B	12	W
5	Z	13	+5V
6	Z	14	0V
7	U	15	SHIELD
8	U		

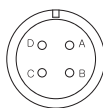


Model	External Dimensions					Weight(kg)
	L	LM	LC	CB	Hollow Shaft	
HB01A	140.5	103.5	68.5	24	15	0.89
HB02A	154.5	117.5	82.5	38	15	1.16
HB04A	182.5	140.5	105.5	66	15	1.69

HE Series [Hollow Shaft type]

Plug Specifications

[Power]

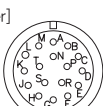


Spec.
: MS3102A20-4P
(Standard)

Pin No.	Signal
A	U
B	V
C	W
D	Ground

(Power Connector Pin Table)

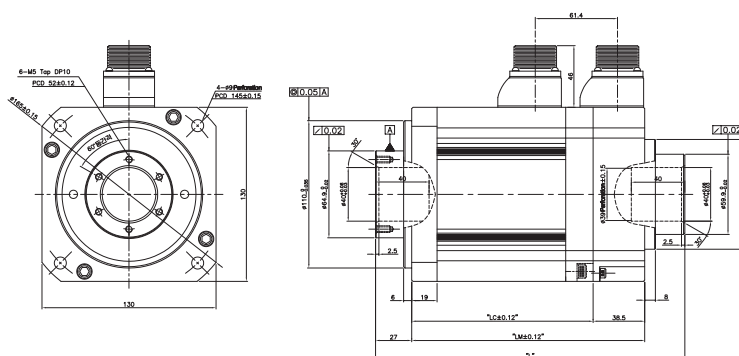
[Encoder]



Spec.
: MS3102A20-29P

Pin No.	Signal	Pin No.	Signal
A	A	M	V
B	A	N	V
C	B	P	W
D	B	R	W
E	Z	H	+5V
F	Z	G	0V
K	U	J	SHIELD
L	U		

(Parallel Encoder Connector Pin Table)



Model	External Dimensions				Weight(kg)
	L	LM	LC	Hollow Shaft	
HE09A	207	150	111.5	40	5.82
HE15A	231	174	135.5	40	7.43
HE30A	279	222	183.5	40	

Brake and Heat Sink Specification

Electric Brake Specifications

Applicable Motor Series	APM-SA,FAL	APM-SB,FB,FBL	APM-SC,FC,FCL	APM-SE,SEP,FE,FEP	APM-SF,SFP,FF,FFP	APM-SG,SGP,FG,FGP
Purpose	Maintenance					
Input voltage [V]	DC 24V	DC 24V	DC 24V	DC 24V	DC 24V	DC 90V
Static friction torque [N · m]	0.32	1.47	3.23	10.4	40	74
Capacity [W]	6	6.5	9	19.4	25	32
Coil resistance [Ω]	96	89	64	29.6	23	327
Rated current [A]	0.25	0.27	0.38	0.81	1.04	0.28
Braking mechanism	Spring brake					
Insulation grade	GrDde F					

Note1) For the Electronic Brake that is attached to our Servo Motor, the same specifications are to be applied as per the series.

Note2) Do not use it for braking purpose because the electronic brake is only for maintaining the stopped condition.

Note3) The characteristics of electronic brake is measured at 20°C

Note4) Please make sure to always check the voltage specification on the motor because indicated brake specifications are subject to change.

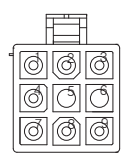
Heat Sink Specifications

Type	Dimensions(mm)	Materials
AP04	250x250x6	Aluminum
AP06	250x250x6	
AP08	250x250x12	
AP13	350x350x20	
AP18	550x550x30	
AP22	650x650x35	

NOTE 1) The data on the product features is measured when those heat sinks are applied.

S Series Encoder Pin Map

SA, SB, SC Series



Plug Specification :
172169-1
(AMP)

Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	MA	2	MA
3	SLO	3	SLO
4	SLO	4	SLO
5	—	5	VOD_B
6	—	6	GND_B
7	+5V	7	+5V
8	0V	8	0V
9	SHIELD	9	SHIELD

(Serial Encoder Connector Pin Table)

SE, SF, SG Series



17 Pole Plug
(MS3102A20-29P)

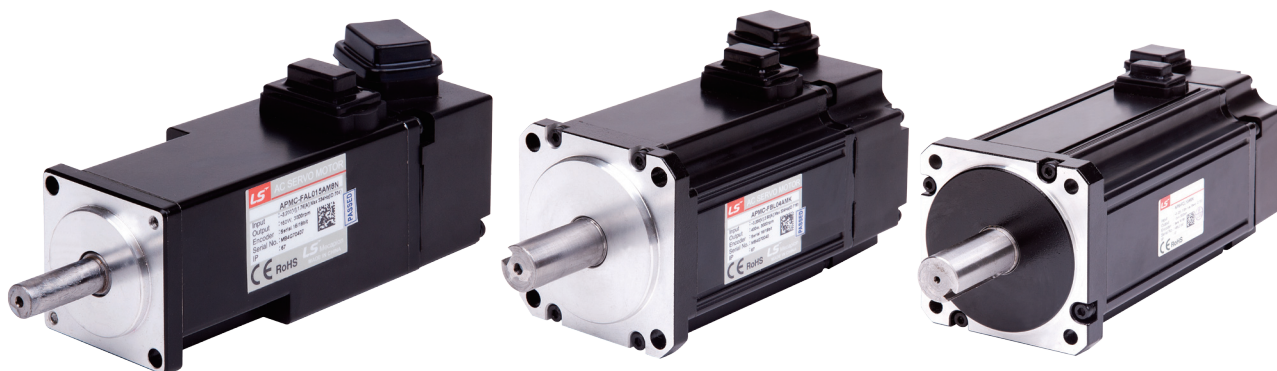
Single Turn (N)				Multi Turn (M)			
Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
A	MA	M	—	A	MA	M	—
B	MA	N	—	B	MA	N	—
C	SLO	P	—	C	SLO	P	—
D	SLO	R	—	D	SLO	R	—
E	—	H	+5V	E	VOD_B	H	+5V
F	—	G	0V	F	GND_B	G	0V
K	—	J	MA	K	—	J	MA
L	—	—	—	L	—	—	—

(Serial Encoder Connector Pin Table)

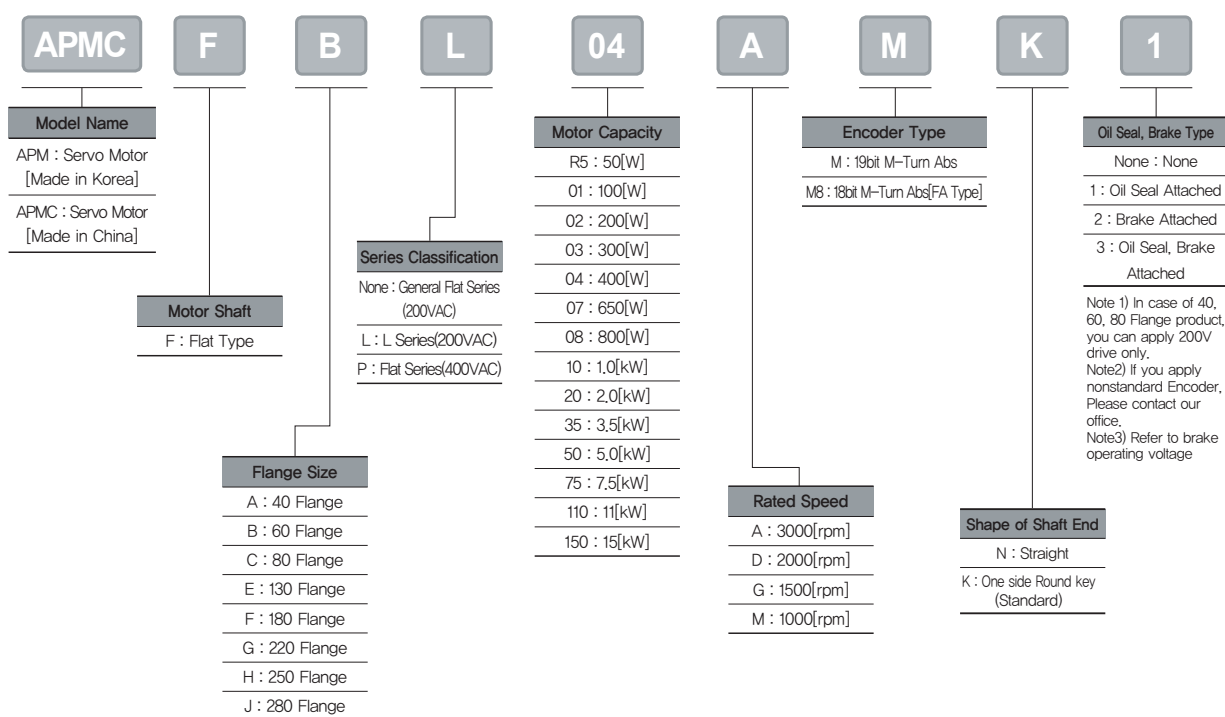
L7 SERIES SYSTEM

Flat Type Servo Motor

F Series



Servo Motor Designation



F Series Motor Characteristics (200V)

Motor Specifications [Rated 3000r/min, 2000r/min]

Servo Motor (APM-□□□□)		FALR5A	FAL01A	FAL015A	FBL01A	FBL02A	FBL04A	FCL04A	FCL06A	FCL08A	FCL10A	FCL03D	FCL05D	FCL06D	FCL07D
Applicable Drive		L7□A001		L7□A002	L7□A001	L7□A002	L7□A004	L7□A004	L7□A008		L7□A010	L7□A004	L7□A008		
Flange Size(□)		□40			□60				□80						
Rated Output	[kW]	0.05	0.1	0.15	0.1	0.2	0.4	0.4	0.6	0.75	1	0.3	0.45	0.55	0.65
Rated Torque	[N・m]	0.16	0.32	0.48	0.32	0.64	1.27	1.27	1.91	2.39	3.18	1.43	2.15	2.63	3.1
	[kgf・cm]	1.62	3.25	4.87	3.25	6.49	12.99	12.99	19.49	24.36	32.48	14.62	21.92	26.8	31.67
Instantaneous	[N・m]	0.48	0.96	1.43	0.96	1.91	3.82	3.82	5.73	7.16	9.55	4.3	6.45	7.88	9.31
Maximum Torque	[kgf・cm]	4.87	9.74	14.62	9.74	19.48	38.96	38.98	58.47	73.08	97.44	43.85	65.77	80.39	95.01
Rated Current	[A]	0.95	1.25	1.76	0.95	1.45	2.6	2.58	3.81	5.02	5.83	2.5	3.05	3.06	3.83
Max. Current	[A]	2.85	3.75	5.28	2.85	4.35	7.8	7.75	11.42	15.07	17.5	7.51	9.16	9.18	11.5
Rated Speed	[r/min]	3000											2000		
Max. Speed	[r/min]	5000											3000		
Inertia	[kg・m ² ×10 ⁻⁴]	0.023	0.042	0.063	0.091	0.147	0.248	0.53	0.897	1.264	1.632	0.53	0.897	1.264	1.63
	[gf・cm×s ²]	0.024	0.043	0.065	0.093	0.15	0.253	0.541	0.915	1.29	1.665	0.541	0.915	1.29	1.66
Allowable Load Inertia Ratio		30 times of motor inertia			20 times of motor inertia				15 times of motor inertia						
Rated Power Rate	[kW/s]	10.55	23.78	35.34	11.09	27.6	27.57	30.6	40.66	45.09	62.08	38.73	51.47	54.56	59.03
Speed/Position Detector	Standard(Note1)	Serial Multi-Turn Built-in Type (18bit)				Serial Multi-Turn Built-in Type(19bit)									
	Option	X													
Specifications & Features	Structure	Fully closed・Self cooling IP67 Note1)													
	Rated Time	Continuous													
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]													
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)													
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.													
Weight	E/V	Elevation/vibration 49[m/s2](5G)													
	[kg]	0.31	0.45	0.61	0.56	0.74	1.06	1.52	2.14	2.68	3.3	1.26	2.12	2.66	2.78

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

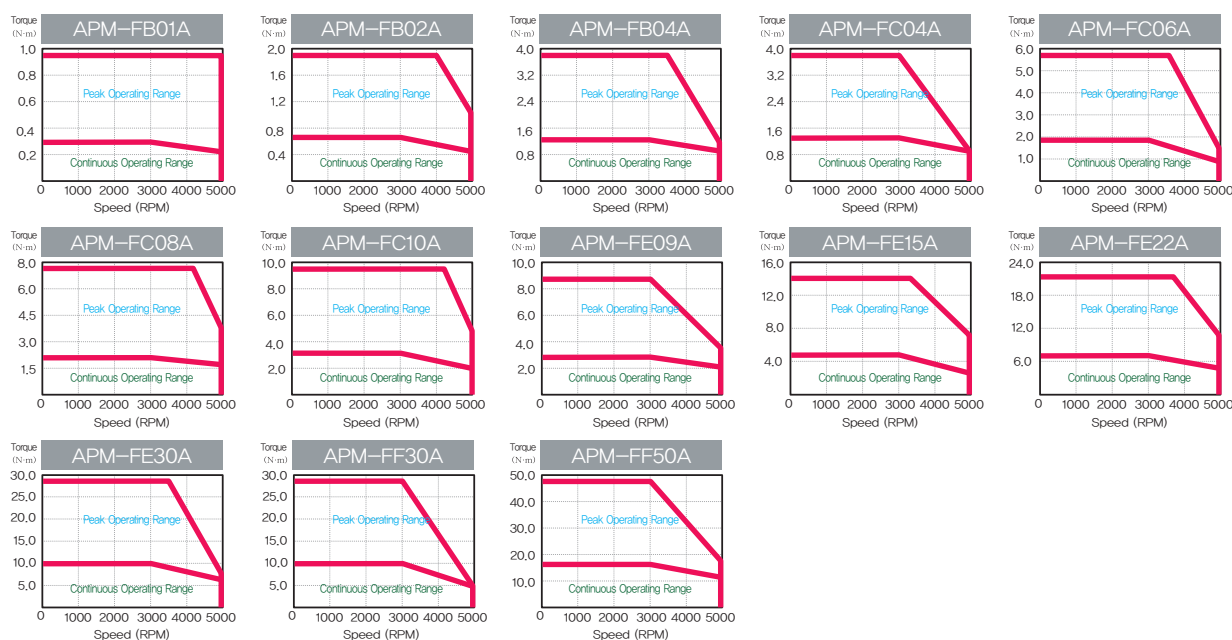
F Series Motor Characteristics (200V)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM-□□□□)	FB01A	FB02A	FB04A	FC04A	FC06A	FC08A	FC10A	FE09A	FE15A	FE22A	FE30A	FF30A	FF50A
Applicable Drive	L7□A001	L7□A002	L7□A004	L7□A004	L7□A008	L7□A010	L7□A010	L7□A010	L7□A020	L7□A035	L7□A035	L7□A050	
Flange Size(□)	□60			□80				□130				□180	
Rated Output	[kW]	0.1	0.2	0.4	0.4	0.6	0.75	1	0.9	1.5	2.2	3	5
Rated Torque	[N · m]	0.32	0.64	1.27	1.27	1.91	2.39	3.18	2.86	4.77	7	9.55	15.91
	[kgf · cm]	3.25	6.5	12.99	13	19.5	24.36	32.5	29.2	48.7	71.4	97.4	162.3
Instantaneous Maximum Torque	[N · m]	0.96	1.91	3.82	3.82	5.73	7.16	9.55	8.59	14.32	21.01	28.65	47.74
	[kgf · cm]	9.74	19.49	38.98	38.98	58.47	73.08	97.44	87.7	146.1	214.3	292.2	487
Rated Current	[A]	0.95	1.45	2.6	2.58	3.81	5.02	6.7	6.45	9.15	13.24	16.09	26.47
Max. Current	[A]	2.86	4.35	7.79	7.75	11.42	15.07	20.09	19.35	27.45	39.72	48.27	79.41
Rated Speed	[r/min]	3000											
Max. Speed	[r/min]	5000											
Inertia	[kg · m ² × 10 ⁻⁴]	0.09	0.15	0.25	0.5	0.88	1.25	1.62	5.66	10.18	14.62	19.04	27.96
	[gf · cm × s ²]	0.09	0.15	0.25	0.51	0.89	1.27	1.65	5.77	10.39	14.92	19.43	28.53
Allowable Load Inertia Ratio		20 times of motor inertia			15 times of motor inertia				10 times of motor inertia				5 times of motor inertia
Rated Power Rate	[kW/s]	11.38	27.95	65.9	32.62	41.69	45.78	62.74	14.47	22.38	33.59	47.85	54.33
Speed/Position Detector	Standard(Note1)	Serial Type 19[bit]											
Specifications & Features	Option	X											
	Structure	Fully closed · Self cooling IP65 Note1)											
	Rated Time	Continuous											
	Ambient Temp	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]											
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)											
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.											
	E/V	Elevation/vibration 49[m/s ²](5G)											
Weight	[kg]	0.7	0.9	1.3	1.6	2.2	2.7	3.8	5	6.7	8.5	10.1	17.4

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



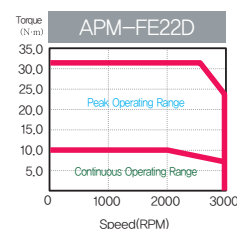
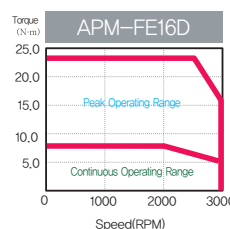
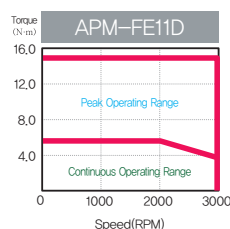
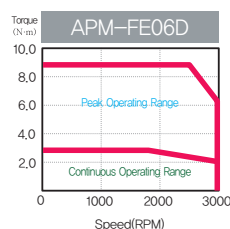
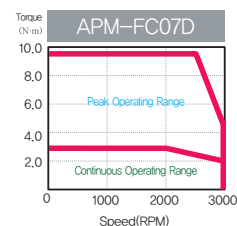
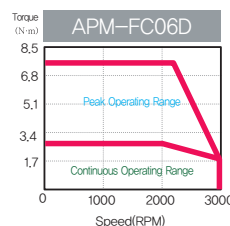
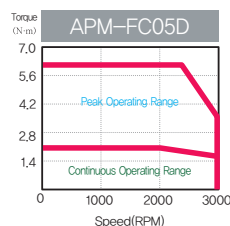
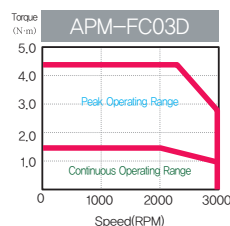
F Series Motor Characteristics (200V)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		FC03D	FC05D	FC06D	FC07D	FE06D	FE11D	FE16D	FE22D
Applicable Drive		L7□A004	L7□A008				L7□A010	L7□A020	
Flange Size(□)		□80				□130			
Rated Output	[kW]	0.3	0.45	0.55	0.65	0.6	1.1	1.6	2.2
Rated Torque	[N · m]	1.43	2.15	2.6	3.1	2.86	5.25	7.63	10.5
	[kgf · cm]	14.6	21.9	26.8	31.7	29.2 0	53.6	77.9	107.1
Instantaneous	[N · m]	4.3	6.45	7.88	9.31	8.59	15.75	22.92	31.51
Maximum Torque	[kgf · cm]	43.8	65.8	80.4	95	87.7	160.7	233.8	321.4
Rated Current	[A]	2.5	3.05	3.06	3.83	4.56	6.47	10.98	12.97
Max. Current	[A]	7.51	9.16	9.18	11.5	13.68	19.41	32.94	38.91
Rated Speed	[r/min]	2000							
Max. Speed	[r/min]	3000							
Inertia	[kg · m ² ×10 ⁻⁴]	0.5	0.88	1.25	1.62	5.66	10.18	14.62	19.04
	[gf · cm×s ²]	0.51	0.89	1.27	1.65	5.77	10.39	14.92	19.43
Allowable Load Inertia Ratio		15 times of motor inertia				10 times of motor inertia			
Rated Power Rate	[kW/s]	41.28	52.76	55.39	59.64	14.49	27.08	39.89	57.9
Speed/Position Detector	Standard(Note1)	Serial Multi-Turn Built-in Type(19bit)							
	Option	X							
Specifications & Features	Structure	Fully closed · Self cooling IP65 Note1)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]							
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)							
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.							
	E/V	Elevation/vibration 49[m/s2](5G)							
Weight	[kg]	1.6	2.2	2.7	3.8	5	6.7	8.5	10.1

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

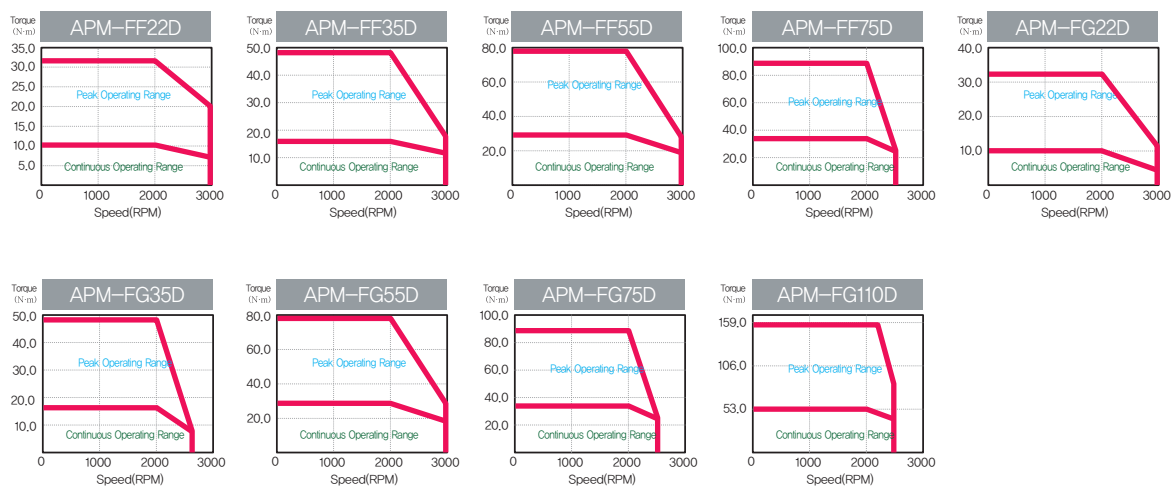
F Series Motor Characteristics (200V)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		FF22D	FF35D	FF55D	FF75D	FG22D	FG35D	FG55D	FG75D	FG110D
Applicable Drive		L7□A020	L7□A035	L7□A050	L7□A075	L7□A020	L7□A035	L7□A050	L7□A075	L7□A150
Flange Size(□)		□180				□220				
Rated Output	[kW]	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5	11
Rated Torque	[N・m]	10.5	16.7	26.25	35.81	10.5	16.71	26.25	35.81	52.52
	[kgf・cm]	107.1	170.4	267.8	365.4	107.1	170.4	267.8	365.4	535.9
Instantaneous Maximum Torque	[N・m]	31.5	50.1	78.76	89.53	31.51	50.12	78.76	89.53	157.55
	[kgf・cm]	321.3	511.4	803.4	913.5	321.3	511.3	803.4	913.5	1,607.60
Rated Current	[A]	13.07	16.48	28.78	32.95	10.25	14.67	29.74	30.17	51.39
Max. Current	[A]	39.21	49.44	86.34	82.37	30.75	44.01	89.22	75.43	154.17
Rated Speed	[r/min]	2000								
Max. Speed	[r/min]	3000			2500	3000	2700	3000	2500	2500
Inertia	[kg・m ² ×10 ⁻⁴]	27.96	46.56	73.85	106.7	41.13	71.53	117.72	149.4	291.36
	[gf・cm×s ²]	28.53	47.51	75.36	108.9	41.97	72.99	120.12	152.45	297.31
Allowable Load Inertia Ratio		5 times of motor inertia								
정격파워레이트	[kW/s]	39.43	59.89	93.27	120.15	26.78	38.99	58.51	85.83	94.65
Speed/Position Detector	Standard(Note1)	Serial Type 19[bit]								
	Option	X								
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)								
	Rated Time	Continuous								
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]								
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)								
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.								
	E/V	Elevation/vibration 49[m/s2](5G)								
Weight	[kg]	12.5	17.4	25.12	33.8	15.4	20.2	28.12	33.45	66.2

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



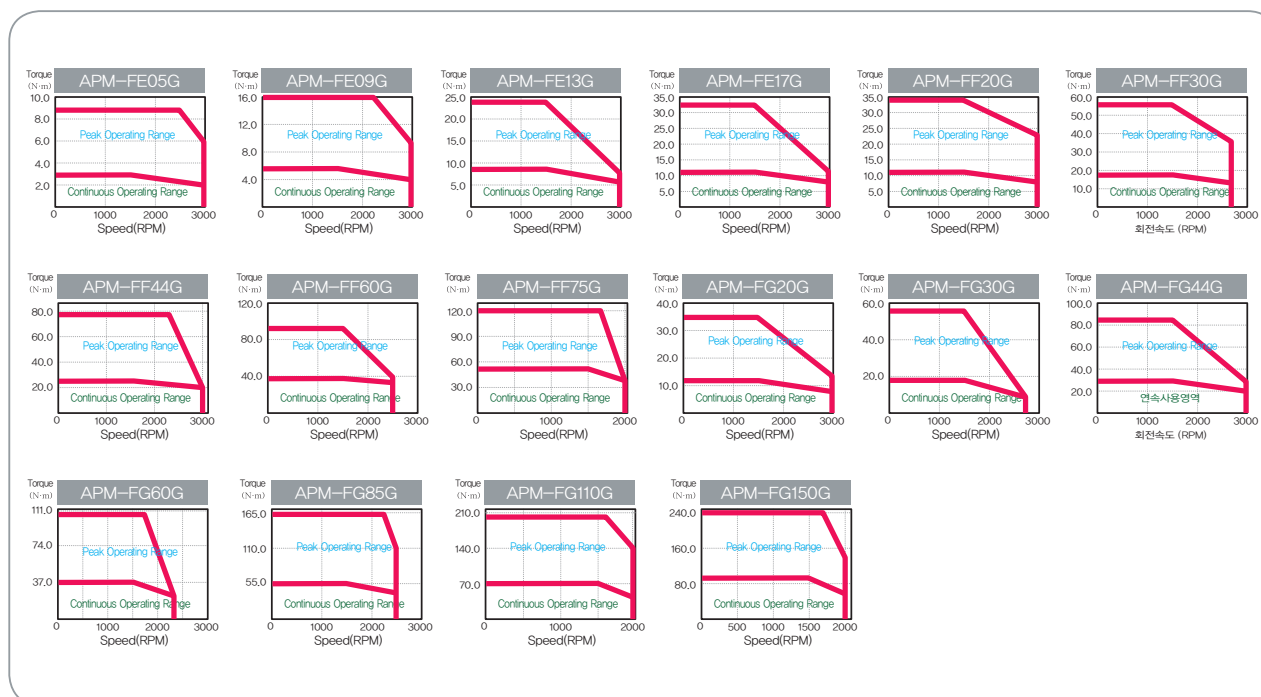
F Series Motor Characteristics (200V)

Motor Specifications [Rated 1500r/min]

Servo Motor (APM-□□□□)		FE05G	FE09G	FE13G	FE17G	FF20G	FF30G	FF44G	FF60G	FF75G	FG20G	FG30G	FG44G	FG60G	FG85G	FG110G	FG150G	
Applicable Drive		L7□A008	L7□A010	L7□A020		L7□A020	L7□A035	L7□A050	L7□A075	L7□A075	L7□A020	L7□A035	L7□A050	L7□A075	L7□A150	L7□A150	L7□A150	
Flange Size(□)		□130				□180					□220							
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6	7.5	1.8	2.9	4.4	6	8.5	11	15	
Rated Torque	[N・m]	2.86	5.41	8.27	10.82	11.45	18.46	28	38.2	47.7	11.5	18.5	28	38.2	54.11	69.99	95.45	
	[kgf・cm]	29.22	55.19	84.41	110.38	116.9	188.3	285.7	389.8	487.2	116.9	188.4	285.8	389.7	552.1	714.2	974	
Instantaneous	[N・m]	8.59	16.23	24.82	32.46	34.35	55.38	78.4	95.5	119.3	34.4	55.4	84	107.0	162.32	209.97	238.63	
Maximum Torque	[kgf・cm]	87.66	165.57	253.23	331.14	350.6	564.9	799.7	974.9	1,217.3	350.8	565.1	857.4	1,091.8	1,656.30	2,142.60	2,435	
Rated Current	[A]	4.56	6.67	11.9	13.36	12.16	15.98	30.7	35.14	35.26	11.18	16.21	31.72	32.18	52.94	59.3	75.6	
Max. Current	[A]	13.68	20.01	35.7	40.08	36.48	47.94	85.96	89.85	88.15	33.54	48.63	88.82	96.54	158.82	177.9	189	
Rated Speed	[r/min]	1500																
Max. Speed	[r/min]	3000				3000	2700	3000	2500	2200	3000	2700	3000	2500	2500	2000	2000	
Inertia	[kg・m ² ×10 ⁻⁴]	5.66	10.18	14.62	19.04	27.96	46.56	73.85	106.7	131.3	14.13	71.53	117.72	149.4	291.36	291.36	424.57	
	[gf・cm×s ²]	5.77	10.39	14.92	19.43	28.53	47.51	75.36	108.9	134	41.97	72.99	120.12	152.45	297.31	297.31	416.08	
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia												
Rated Power Rate	[kW/s]	14.49	28.74	46.81	61.46	46.92	73.14	106.15	136.73	173.63	31.91	47.66	66.64	97.63	100.48	168.27	223.44	
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]																
	Option	X																
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)																
	Rated Time	Continuous																
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]																
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)																
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.																
Weight	E/V	Elevation/vibration 49[m/s ²](5G)																
	[kg]	5.0	6.7	8.5	10.1	12.5	17.4	25.2	33.8	38.5	15.4	20.2	28	33.45	66.2	66.3	92.2	

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

F Series Motor Characteristics (200V)

Motor Specifications [Rated 1000r/min]

Servo Motor (APM-□□□□)		FE03M	FE06M	FE09M	FE12M	FF12M	FF20M	FF30M	FF44M	FG12M	FG20M	FG30M	FG44M	FG60M
Applicable Drive		L7□A004	L7□A008	L7□A010	L7□A020	L7□A020		L7□A035	L7□A050	L7□A020		L7□A035	L7□A050	L7□A075
Flange Size(□)		□130				□180				□220				
Rated Output	[kW]	0.3	0.6	0.9	1.2	1.2	2	3	4.4	1.2	2	3	4.4	6
Rated Torque	[N・m]	2.86	5.72	8.59	11.46	11.46	19.09	28.64	42.02	11.5	19.1	28.6	42	57.29
	[kgf・cm]	29.22	58.4	87.7	116.9	116.9	194.8	292.2	428.7	116.9	194.9	292.3	428.7	584.6
Instantaneous Maximum Torque	[N・m]	8.59	17.18	25.77	34.22	34.38	57.29	85.94	105.1	34.4	57.3	85.9	126	171.87
	[kgf・cm]	87.66	175.3	262.9	349.1	350.7	584.4	876.6	1,072.4	350.8	584.6	876.9	1,286.1	1,753.80
Rated Current	[A]	2.73	4.56	6.18	10.67	11.01	12.96	16.58	30.6	11.28	13.1	15.52	27.26	38
Max. Current	[A]	8.19	13.68	18.54	32.01	33.03	38.88	49.74	85.68	33.84	39.3	46.56	81.78	102
Rated Speed	[r/min]	1000												
Max. Speed	[r/min]	2000						1700	2000			1700	2000	
Inertia	[kg・m ² ×10 ⁻⁴]	5.66	10.18	14.62	19.04	27.96	46.56	73.85	106.7	41.13	71.53	117.72	149.4	291.36
	[gf・cm×s ²]	5.77	10.39	14.92	19.43	28.53	47.51	75.36	108.9	41.97	72.99	120.12	152.45	297.31
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia								
Rated Power Rate	[kW/s]	14.49	32.22	50.48	68.91	46.94	78.27	111.04	165.38	31.91	51	69.7	118.14	112.65
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]												
	Option	X												
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)												
	Rated Time	Continuous												
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]												
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)												
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.												
	E/V	Elevation/vibration 49[m/s2](5G)												
Weight	[kg]	5	6.7	8.5	10.1	12.5	17.4	25.2	33.8	15.4	20.2	28	33.5	66.2

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



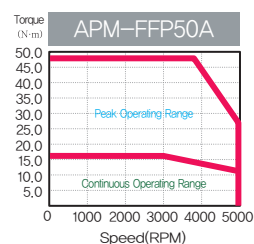
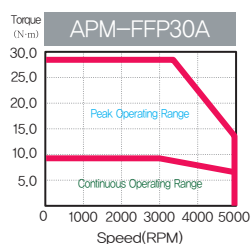
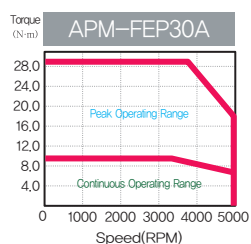
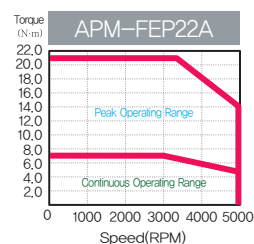
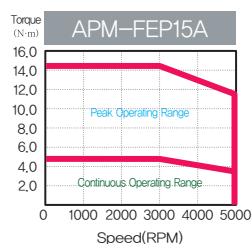
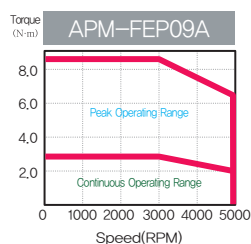
F Series Motor Characteristics (400V)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM—□□□□)		FEP09A	FEP15A	FEP22A	FEP30A	FFP30A	FFP50A
Applicable Drive		L7□B010□	L7□B020□	L7□B035□			L7□B050□
Flange Size(□)		□130				□180	
Rated Output	[kW]	0.9	1.5	2.2	3.0	3.0	5.0
Rated Torque	[N · m]	2.86	4.77	7.0	9.55	9.55	15.92
	[kgf · cm]	29.23	48.72	71.46	97.44	97.44	162.4
Instantaneous Maximum Torque	[N · m]	8.59	14.32	21.01	28.65	28.65	39.79
	[kgf · cm]	87.7	146.16	214.37	292.33	292.33	406.01
Rated Current	[A]	3.47	6.68	9.12	9.94	9.79	16.07
Max. Current	[A]	10.4	20.03	27.35	29.81	29.38	48.22
Rated Speed	[r/min]	3000					
Max. Speed	[r/min]	5000					
Inertia	[kg · m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	27.96	46.56
	[gf · cm×s ²]	5.774	10.387	14.917	19.429	28.531	47.51
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia	
Rated Power Rate	[kW/s]	14.5	22.4	33.55	47.89	32.61	54.4
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]					
	Option	X					
Specifications & Features	Structure	Fully closed · Self cooling IP65 Note1)					
	Rated Time	Continuous					
	Ambient Temp	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]					
	Ambient Humidity	90[%]RH Below (avoid dew—condensation)					
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.					
	E/V	Elevation/vibration 49[m/s2](5G)					
Weight	[kg]	5.5	7.54	9.68	11.78	12.4	17.7

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

F Series Motor Characteristics (400V)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		FEP06D	FEP11D	FEP16D	FEP22D	FFP22D	FFP35D	FFP55D	FFP75D	FGP22D	FGP35D	FGP55D	FGP75D	FGP110D	
Applicable Drive		L7□B010□		L7□B020□			L7□B035□		L7□B050□	L7□B075□	L7□B020□	L7□B035□	L7□B050□	L7□B075□	L7□B150□
Flange Size(□)		□130					□180				□220				
Rated Output	[kW]	0.6	1.1	1.6	2.2	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5	11	
Rated Torque	[N・m]	2.86	5.25	7.64	10.5	10.5	16.71	26.26	35.81	10.5	16.71	26.26	35.81	52.52	
	[kgf・cm]	29.23	53.59	77.95	107.19	107.19	170.52	267.96	365.41	107.19	170.52	267.96	365.41	535.93	
Instantaneous Maximum Torque	[N・m]	8.59	15.76	22.92	31.51	31.51	50.13	65.65	89.52	31.51	50.13	78.78	89.52	131.30	
	[kgf・cm]	87.7	160.78	233.86	321.56	321.56	511.57	669.91	913.52	321.56	511.57	803.89	913.52	1339.82	
Rated Current	[A]	3.28	3.4	4.97	6.80	6.93	9.09	14.70	18.97	7.12	8.73	16.04	19.10	27.41	
Max.Current	[A]	9.83	10.19	14.92	20.4	20.8	27.26	44.1	47.42	21.35	26.2	48.11	47.76	67.33	
Rated Speed	[r/min]	2000													
Max. Speed	[r/min]	3000							2500	3000	2700	3000	2500		
Inertia	[kg・m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	27.96	46.56	73.85	106.73	41.13	71.53	117.72	149.4	291.36	
	[gf・cm×s ²]	5.774	10.387	14.917	19.429	28.531	47.51	75.357	108.908	41.67	72.99	120.12	152.45	297.31	
Allowable Load Inertia Ratio		10 times of motor inertia					5 times of motor inertia								
Rated Power Rate	[kW/s]	14.5	27.1	39.92	57.95	39.46	59.98	93.38	120.15	26.83	39.04	58.58	85.83	94.65	
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]													
	Option	X													
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)													
	Rated Time	Continuous													
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]													
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)													
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.													
	E/V	Elevation/vibration 49[m/s2](5G)													
Weight	[kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	16.95	21.95	30.8	37.52	66.2	

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



F Series Motor Characteristics (400V)

Motor Specifications [Rated 1500r/min]

Servo Motor (APM-□□□□)		FEP05G	FEP09G	FEP13G	FEP17G	FFP20G	FFP30G	FFP44G	FFP60G	FFP75G	FGP20G	FGP30G	FGP44G	FGP60G	FGP85G	FGP110G	FGP150G	
Applicable Drive		L7□B010□		L7□B020□			L7□B035□	L7□B050□	L7□B075□		L7□B020□	L7□B035□	L7□B050□	L7□B075□	L7□B150□			
Flange Size(□)		□130					□180					□220						
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6	7.5	1.8	2.9	4.4	6	8.5	11	15	
Rated Torque	[N・m]	2.86	5.41	8.28	10.82	11.46	18.46	28.01	38.2	47.75	11.46	18.46	28.01	38.2	54.11	70.03	95.49	
	[kgf・cm]	29.23	55.22	84.45	110.43	116.93	188.39	285.83	389.77	487.21	116.93	188.39	285.83	389.77	552.17	714.57	974.42	
Instantaneous	[N・m]	8.59	16.23	24.83	32.47	34.38	55.39	84.03	95.49	119.37	34.38	55.39	84.03	95.49	135.28	175.07	238.73	
Maximum Torque	[kgf・cm]	87.7	165.65	253.35	331.3	350.79	565.16	857.49	974.42	1,218.02	350.79	565.16	857.49	974.42	1,380.43	1,786.43	2,436.05	
Rated Current	[A]	3.28	3.50	5.39	7.01	7.56	10.04	15.68	20.23	20.01	7.76	9.65	17.11	20.38	28.24	28.28	35.71	
Max. Current	[A]	9.83	10.5	16.16	21.02	22.69	30.12	47.04	50.58	50.03	23.29	28.95	51.32	50.95	69.37	68.83	87.7	
Rated Speed	[r/min]	1500																
Max. Speed	[r/min]	3000					2700	3000	2500	2200	3000	2700	3000	2500		2000		
Inertia	[kg・m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	27.96	46.56	73.85	106.73	131.29	51.42	80.35	132.41	172.91	291.36	51.42	424.5	
	[gf・cm×s ²]	5.774	10.387	14.917	19.429	28.531	47.51	75.357	108.908	133.969	52.47	81.99	135.11	176.44	297.31	52.47	433.2	
Allowable Load Inertia Ratio		10 times of motor inertia					5 times of motor inertia											
Rated Power Rate	[kW/s]	14.5	28.77	46.85	61.52	46.96	73.21	106.25	136.7	173.64	25.53	45.39	61.97	102.08	100.5	168.3	214.8	
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]																
	Option	X																
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)																
	Rated Time	Continuous																
	Ambient Temp	Operating : 0 ~ 40[°C] Storage : -10 ~ 60[°C]																
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)																
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.																
	E/V	Elevation/vibration 49[m/s2](5G)																
Weight	[kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	39.4	16.95	21.95	30.8	37.52	66.2	66.3	92.2	

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics



L7 SERIES SYSTEM

F Series Motor Characteristics (400V)

Motor Specifications [Rated 1000r/min]

Servo Motor (APM-□□□□)		FEP03M	FEP06M	FEP09M	FEP12M	FFP12M	FFP20M	FFP30M	FFP44M	FGP12M	FGP20M	FGP30M	FGP44M	FGP60M
Applicable Drive		L7□B010□			L7□B020□			L7□B050□		L7□B020□		L7□B050□		L7□B150
Flange Size(□)		□130				□180				□220				
Rated Output	[kW]	0.3	0.6	0.9	1.2	1.2	2	3	4.4	1.2	2	3	4.4	6
Rated Torque	[N・m]	2.86	5.73	8.59	11.46	11.46	19.1	28.65	42.02	11.46	19.1	28.65	42.02	57.3
	[kgf・cm]	29.23	58.47	87.7	116.93	116.93	194.88	292.33	428.74	116.93	194.88	292.33	428.74	584.65
Instantaneous	[N・m]	8.59	17.19	25.78	34.38	34.38	57.3	85.94	126.05	34.38	57.3	85.94	126.05	143.24
Maximum Torque	[kgf・cm]	87.7	175.4	263.09	350.79	350.79	584.65	876.98	1286.23	350.79	584.65	876.98	1,071.86	1,461.63
Rated Current	[A]	3.28	3.28	3.33	4.87	4.83	7.94	11.9	16.69	4.75	7.88	11.74	17.39	23.58
Max.Current	[A]	9.83	9.83	9.99	14.6	14.5	23.83	35.7	50.08	14.24	23.64	35.22	52.18	57.92
Rated Speed	[r/min]	1000												
Max. Speed	[r/min]	2000						1700		2000				
Inertia	[kg・m ² ×10 ⁻⁴]	5.659	10.179	14.619	19.04	27.96	46.56	73.85	106.73	51.42	80.35	132.41	172.91	291.36
	[gf・cm×s ²]	5.774	10.387	14.917	19.429	28.531	47.51	75.357	108.908	52.47	81.99	135.11	176.44	297.31
Allowable Load Inertia Ratio		10 times of motor inertia				5 times of motor inertia								
Rated Power Rate	[kW/s]	14.5	32.25	50.53	68.97	46.96	78.38	111.13	165.41	25.53	45.39	61.97	102.08	112.64
Speed/Position Detector	Standard(Note1)	Serial Type 19 [bit]												
	Option	X												
Specifications & Features	Structure	Fully closed・Self cooling IP65 Note1)												
	Rated Time	Continuous												
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]												
	Ambient Humidity	90[%]RH Below (avoid dew-condensation)												
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust.												
	E/V	Elevation/vibration 49[m/s2](5G)												
Weight	[kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	16.95	21.95	30.8	37.52	66.2

Note1) Except for axis penetration, when you attach reducer to the motor, we don't guarantee IP for reducer. If you bend over specification designated in cable standard, it is difficult to guarantee IP marked.
It can be satisfied protection grade when you use private cable only.

Speed-Torque Characteristics

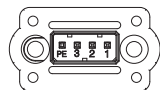


External Dimensions of Servo Motor

FAL Series

Plug Specifications

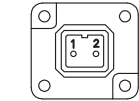
[Power]



Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
PE	Green	Ground

(Power Connector Pin Table)

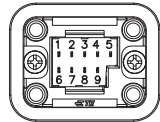
[Brake]



Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	—	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	MA	6	MA
7	SLO	7	SLO
8	—	8	VDD_B
9	+5V	9	+5V

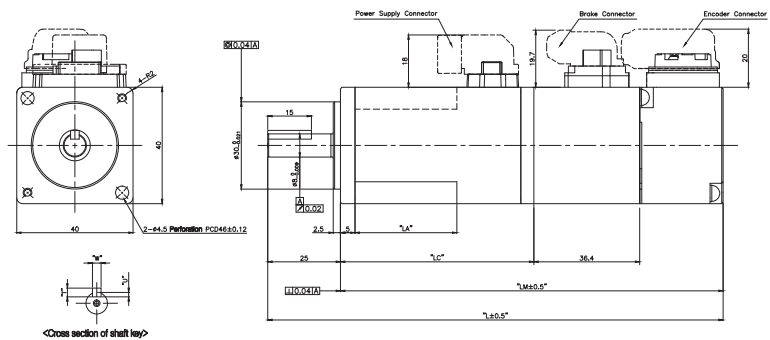
(Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

Note4) In case of FAL Type, the connector can draw in a direction of only front

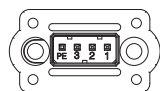


Model	External Dimensions			Key			Weight (kg)
	L	LM	LC	T	W	U	
FALR5A	103.2(139.6)	78.2(114.6)	49.5				0.31(0.66)
FAL01A	120.2(156.6)	95.2(131.6)	66.5	3	3	1.5	0.45(0.80)
FAL015A	140.2	115.2	86.5				0.61

FBL Series

Plug Specifications

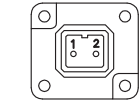
[Power]



Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
PE	Green	Ground

(Power Connector Pin Table)

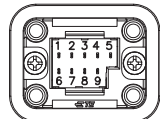
[Brake]



Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



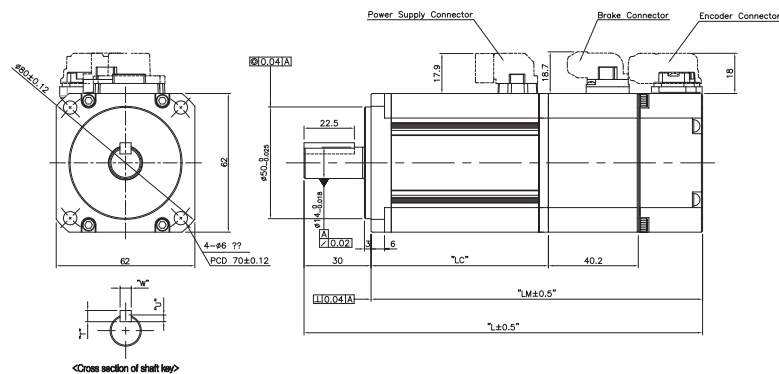
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	—	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	MA	6	MA
7	SLO	7	SLO
8	—	8	VDD_B
9	+5V	9	+5V

(Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.



Model	External Dimensions					Key			Weight (kg)
	L	LM	LC	S	H	T	W	U	
FBL01A	107.2(147.2)	77.2(117.2)	48.5(48.3)	14	-0.018	5	5	3	0.56(1.3)
FBL02A	118.2(158.2)	88.2(128.2)	59.5(59.3)	14	-0.018	5	5	3	0.74(1.48)
FBL04A	138.2(178.2)	108.2(148.2)	79.5(79.3)	14	-0.018	5	5	3	1.06(1.8)

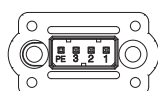
L7 SERIES SYSTEM

External Dimensions of Servo Motor

FCL Series

Plug Specifications

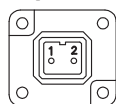
[Power]



Pin No.	Color	Signal
1	Red	U
2	White	V
3	Black	W
PE	Green	Ground

(Power Connector Pin Table)

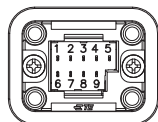
[Brake]



Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



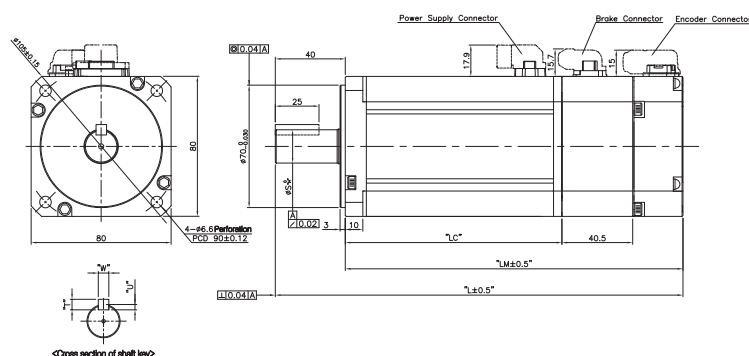
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	—	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	MA	6	MA
7	SLO	7	SLO
8	—	8	VDD_B
9	+5V	9	+5V

(Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

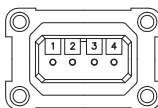


Model	External Dimensions								Weight (kg)
	L	LM	LC	S	H	T	W	U	
FCL04A,FCL03D	138.7(179.5)	98.7(139.5)	70(69.8)	14	-0.018	5	5	3	1.52(2.32)/1.26(2.06)
FCL06A,FCL05D	156.7(197.5)	116.7(157.5)	88(87.8)	19	-0.021	6	6	3.5	2.14(2.94)/2.12(2.92)
FCL08A,FCL06D	174.7(215.5)	134.7(175.5)	106(105.8)	19	-0.021	6	6	3.5	2.68(3.48)/2.66(3.46)
FCL10A,FCL07D	192.7(233.5)	152.7(193.5)	124(123.8)	19	-0.021	6	6	3.5	3.30(4.10)/2.78(3.58)

FB Series

Plug Specifications

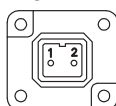
[Power]



Pin No.	Color	Signal
1	Black	W
2	White	V
3	Red	U
4	Green	Ground

(Power Connector Pin Table)

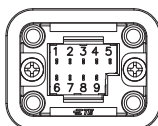
[Brake]



Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



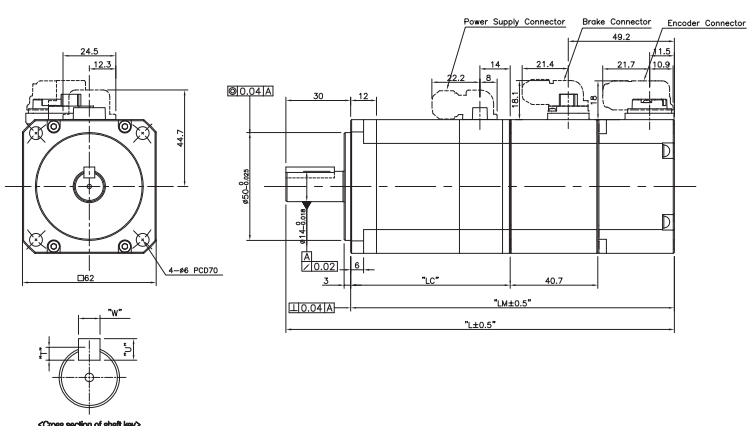
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	—	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	MA	6	MA
7	SLO	7	SLO
8	—	8	VDD_B
9	+5V	9	+5V

(Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.



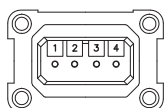
Model	External Dimensions			Key			Weight (kg)
	L	LM	LC	T	W	U	
FB01A	109(149.2)	79(119.2)	43.5(43)	3	5 ^{-0.012} _{-0.042}	5	0.72(1.3)
FB02A	120(160.2)	90(130.2)	54.5(54)				0.94(1.49)
FB04A	140(180.2)	110(150.2)	74.5(74)				1.32(1.87)

External Dimensions of Servo Motor

FC Series

Plug Specifications

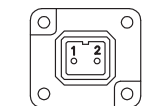
[Power]



Pin No.	Color	Signal
1	Black	W
2	White	V
3	Red	U
4	Green	Ground

(Power Connector Pin Table)

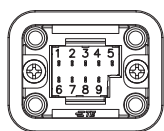
[Brake]



Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]



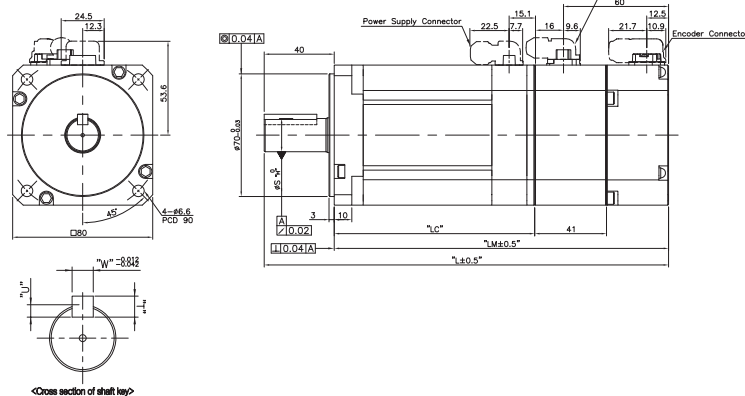
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	—	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	MA	6	MA
7	SLO	7	SLO
8	—	8	VDD_B
9	+5V	9	+5V

(Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.

Note3) For external dimensions for oil-sealed type. Please kindly contact us separately.

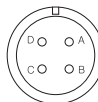


Model	External Dimensions								Weight (kg)
	L	LM	LC	S	H	T	W	U	
FC04A, FC03D	136.5(177)	96.5(137)	61(60.5)	14	-0.018	5	5	3	1.56(2.6)
FC06A, FC05D	154.5(195)	114.5(155)	79(78.5)	19	-0.021	6	6	3.5	2.18(3.22)
FC08A, FC06D	172.5(213)	132.5(173)	97(96.5)	19	-0.021	6	6	3.5	2.72(3.76)
FC10A, FC07D	190.5(231)	150.5(191)	115(114.5)	19	-0.021	6	6	3.5	3.80(4.34)

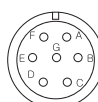
FE, FEP Series

Plug Specifications

[Power]



Spec.
: MS3102A20-4P
(Standard)



Spec.
: MS3102A20-15P
(Brake-attached type)

[Encoder]



Spec.
: MS3102A20-29P

Pin No.	Signal
A	U
B	V
C	W
D	Ground

Pin No.	Signal	Pin No.	Signal
A	U	D	Ground
B	V	E	BK+
C	W	F	BK-

Pin No.	Signal	Pin No.	Signal
A	MA	M	—
B	MA	N	—
C	SLO	P	—
D	SLO	R	—
E	—	H	+5V
F	—	G	0V
K	—	J	SHIELD
L	—		

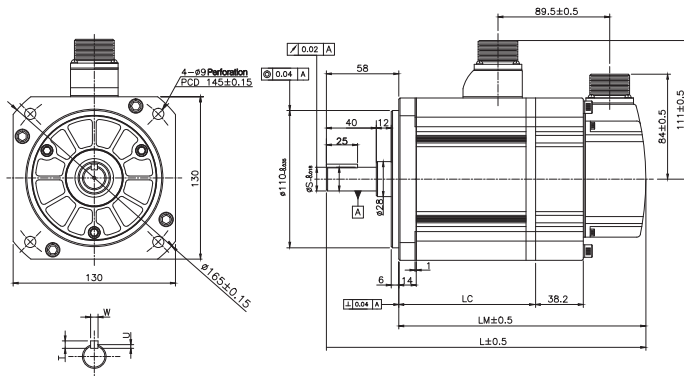
(Single Turn Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
A	MA	M	—
B	MA	N	—
C	SLO	P	—
D	SLO	R	—
E	VDD_B	H	+5V
F	GND_B	G	0V
K	—	J	SHIELD
L	—		

(Multi Turn Encoder Connector Pin Table)

Note1) Use DC[24V] for brake input power supply.

Note2) The () is for brake-attached type.



Model	External Dimensions								Weight (kg)
	L	LM	LC	S	T	W	U		
FE09A, FE06D, FE05G, FE03M FEP09A, FEP06D, FEP05G, FEP03M	197,3(235,3)	139,3(177,3)	89,8(89,6)	19	5	5	3	5,04(6,58)	
FE15A, FE11D, FE09G, FE06M FEP15A, FEP11D, FEP09G, FEP06M	217,3(255,3)	159,3(197,3)	109,8(109,6)	19	5	5	3	6,74(8,28)	
FE22A, FE16D, FE13G, FE09M FEP22A, FEP16D, FEP13G, FEP09M	237,3(275,3)	179,3(217,3)	129,8(129,6)	22	6	6	3,5	8,48(10,02)	
FE30A, FE22D, FE17G, FE12M FEP30A, FEP22D, FEP17G, FEP12M	255,3(293,3)	197,3(235,3)	147,8(147,6)	24	7	8	4	10,05(11,59)	

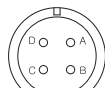
L7 SERIES SYSTEM

External Dimensions of Servo Motor

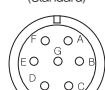
FF, FFP Series

Plug Specifications

[Power]



Spec.
: MS3102A22-22P
(Standard)



Spec.
: MS3102A24-10P
(Brake-attached type)

[Encoder]

2) Serial type



Spec.
: MS3102A20-29P

Pin No.	Signal
A	U
B	V
C	W
D	Ground

Pin No.	Signal	Pin No.	Signal
A	U	D	Ground
B	V	E	BK+
C	W	F	BK-

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-

Pin No.	Signal	Pin No.	Signal
E	-	H	+5V
F	-	G	0V
K	-	J	SHIELD
L	-	-	-

(Single Turn Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-
E	VOD_B	H	+5V
F	GND_B	G	0V
K	-	J	SHIELD
L	-	-	-

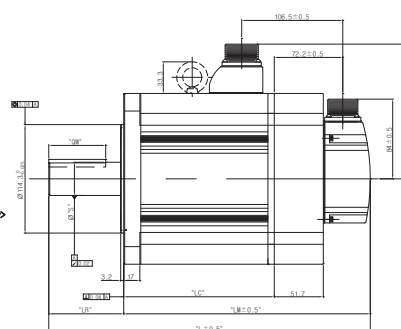
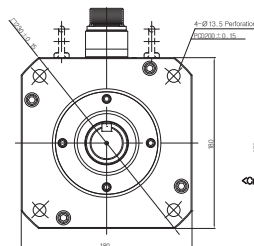
(Multi Turn Encoder Connector Pin Table)

Note1) FF30M or above models have eye bolts.

Note2) Use DC[24V] for brake input power supply.

Note3) The () is for brake-attached type.

Note4) Use MS3102A32-17 for FF75G Power connector.



Model	External Dimensions				Key					Weight (kg)
	L	LM	LC	LR	S	QW	T	W	U	
FF30A, FF22D, FF20G, FF12M FFP30A, FFP22D, FFP20G, FFP12M	257.5(308.9)	178.5(229.9)	129(128.7)							12.5(19.7)
FF50A, FF36D, FF30G, FF20M FFP50A, FFP36D, FFP30G, FFP20M	287.5(338.9)	208.5(259.9)	159(158.7)							17.4(24.6)
FF65D, FF44G, FF30M FFP65D, FFP44G, FFP30M	331.5(382.9)	252.5(303.9)	203(202.7)	79	35 +0.01 0	60	8	10	5	25.2(32.4)
FF75D-SF01, FF60G-SF01, FF44M-SF01, FFP75D-SF01, FFP60G-SF01, FFP44M-SF01	384.5(435.9)	305.5(356.9)	256(255.7)							33.8(41.0)
FF75D, FF60G, FF44M/FFP75D, FFP60G, FFP44M	384.5(435.9)	305.5(356.9)	256(255.7)		42 0 -0.016			12		33.8(41.0)
FF75G, FFP75G	439.5	326.5	277	113		96				38.5(45.7)

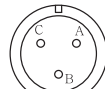
FG, FGP Series

Plug Specifications

[Power]



Spec.
: MS3102A22-22P
(Standard)



Spec.
: MS3102A14-7P
(Brake-attached type)

[Encoder]

2) Serial type



Spec.
: MS3102A20-29P

Pin No.	Signal
A	U
B	V
C	W
D	Ground

Pin No.	Signal	Pin No.	Signal
A	BK+		
B	BK+		
C	NC		

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-

Pin No.	Signal	Pin No.	Signal
E	-	H	+5V
F	-	G	0V
K	-	J	SHIELD
L	-	-	-

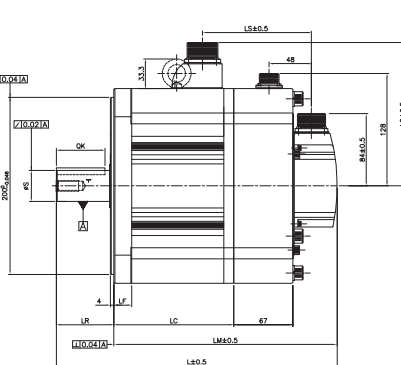
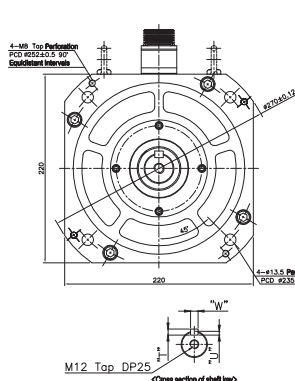
(Single Turn Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	MA	N	-
C	SLO	P	-
D	SLO	R	-
E	VOD_B	H	+5V
F	GND_B	G	0V
K	-	J	SHIELD
L	-	-	-

(Multi Turn Encoder Connector Pin Table)

Note1) In case of SG, use DC[90V] for brake input power supply.

Note2) The () is for brake-attached type.

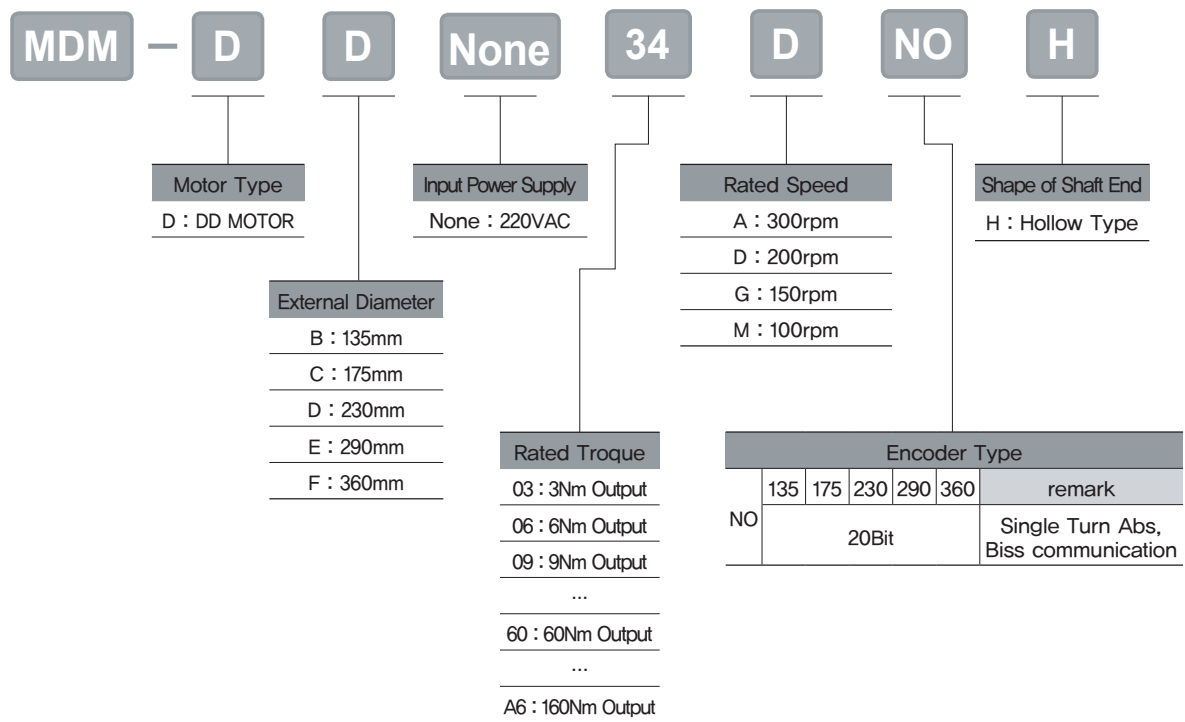


Model	External Dimensions					Key						Weight (kg)	Power supply connector	
	L	LM	LC	LF	LR	LS	LQ	S	QK	T	W			U
FG22D, FG20G, FG12M FGP22D, FGP20G, FGP12M	229.5(296.7)	164.5(230.7)	115(114.2)										15.42(29.23)	MS3102A2ZP
FG36D, FG30G, FG20M FGP36D, FGP30G, FGP20M	250.5(316.7)	185.5(251.7)	136(135.2)										20.22(34.03)	
FG65D, FG44G, FG30M FGP65D, FGP44G, FGP30M	282.5(348.7)	217.5(283.7)	168(167.2)	19	65	564 (226)	162	35.0 0.016		10			28.02(41.83)	
FG75D, FG60G, FG44M FGP75D, FGP60G, FGP44M	304.5(370.7)	239.5(305.7)	190(189.2)					42.0 0.016		8	12	5	33.45(47.26)	
FG110D, FG85G, FG60M FGP110D, FGP85G, FGP60M	418.5(484.7)	353.5(419.7)	304(303.2)					45.0 0.016			10		66.2(82.6)	
FG110G, FGP110G	468.5	353.5	304	21		66 (322)	173	42.0 0.016					66.3	MS3102A3ZP
FG150G, FGP150G	575	459	409	35	115			55.0 0.016		96	12	6	92.2	17P

Direct-Drive motor



Direct-Drive Designation



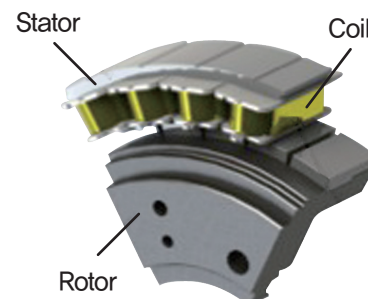
L7 SERIES SYSTEM

Features of Mecapion Direct-Drive Motor

● Using the own technologies to produce motors, drives and encoders domestically

● Optimized for low-speed, high-torque and high-precision operation

- Providing Power connection for the connection of DC-Link Terminal
- Compact Size and Easy Wring (Compared with 3 phase AC Reactor)
- Providing Connection for DC Input (PI, N)



● Reduced cogging torque and optimized torque design

- Optimal ratio of the permanent magnet and coil / slot selected through electromagnetic analysis
- Using multiple permanent magnets to reduce torque ripple and to maximize torque
- Using a permanent magnet of high-energy rare earth elements (Nd-Fe-B)

● Using the high-performance rotary optical encoder that adopts the Biss protocol

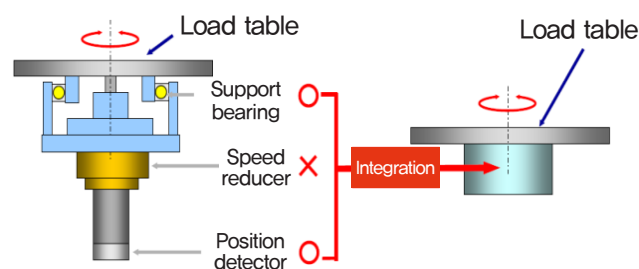
- Resolution of 1,048,576 CPR (Single turn Absolute)
- Using our own encoder technology to reduce the cost and shorten the delivery time

● Compatible with our L7 Series AC Servo Drive (3phase AC 220V)

- Both standard I/O type (serial communication supported) and network type (EtherCAT) applicable

● Direct Drive Structure

- No backlash impact
- High-precision operation and shortened installation time
- Smooth rotary motion
- Reduced noise



[Speed Reducer + Servo Motor]

[DD Motor]

● Hollow type that is efficient for wiring and piping

● A wide range of products

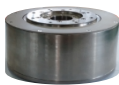
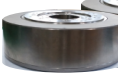
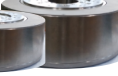
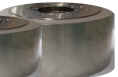
- Rated output: 63W-25kW
- Rated torque: 3.0N.m-160N.m (the instantaneous maximum torque should be 3 times the rated torque)
- Rated speed: 150RPM-200RPM
- Frame diameter: 135mm, 175mm, 230mm, 290mm, and 360mm (13 models)

DD Motor Specifications

Ratings and Specifications

- Insulation class : Class B
- Protection class: IP 40
- Cooling type : Fully enclosed self-cooling
- Vibration class : V15
- Insulation resistance : 500 VDC, 10[MΩ] or higher
- Insulation internal voltage: 1800 VAC, 1 second
- Operating voltage: 200 VAC
- Operating temperature : 0 – 40[°C] / Storage temperature: –10~60[°C]
- Ambient humidity : 20 – 80% RH (no condensation)
- Installation location : Place with no toxic substances, such as corrosive and combustible gasses, cutting oil, metal dust, grease or direct sunlight

Line-up Table

Maximum Torque[Nm]			9	18	27	36	54	66	102	120	180	330	480
Rated speed 200[rpm]	Maximum speed 500[rpm]	Φ135	DB03D 	DB06D 	DB09D 								
		Φ175		DC06D 	DC12D 								
		Φ230			DD12D 								
	Maximum speed 400[rpm]	Φ175				DC18D 							
		Φ230					DD22D 	DD34D 					
	Maximum speed 300[rpm]	Φ290							DE40D 	DE60D 			
		Φ360									DFA1D 	DFA6D 	
Rated speed 150[rpm]	Maximum speed 250[rpm]	Φ360											

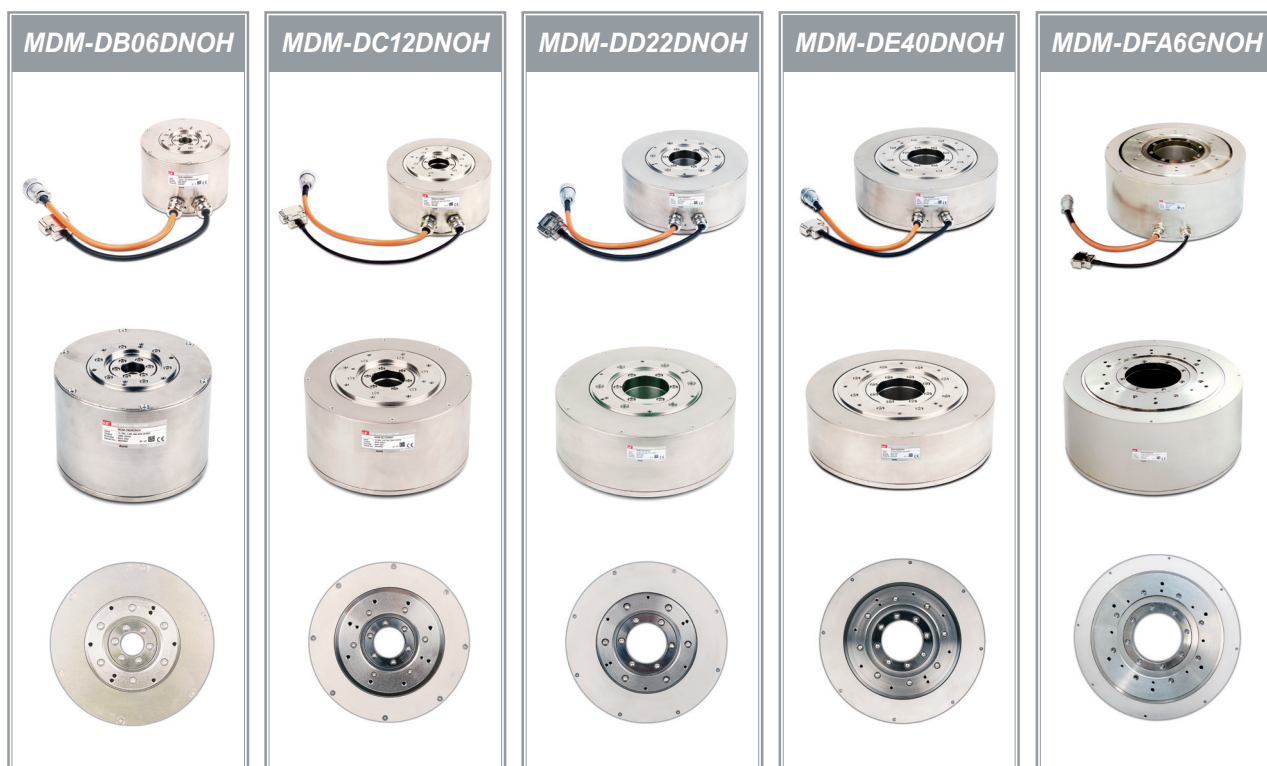
L7 SERIES SYSTEM

Motor Designation

Applicable drive to motor

Rated Speed (RPM)	Maximum Speed (RPM)	External Diameter of Motor(Φ)	Applicable Motor	Applicable Drive	encoder type
200	500	Φ135	DB03D	L7□A001□	20 bit single turn serial encoder (Biss/Absolute)
		Φ135	DB06D	L7□A002□	
		Φ135	DB09D	L7□A004□	
	500	Φ175	DC06D	L7□A002□	
		Φ175	DC12D	L7□A004□	
	400	Φ175	DC18D	L7□A008□	
	500	Φ230	DD12D	L7□A004□	
	400	Φ230	DD22D	L7□A008□	
	400	Φ230	DD34D	L7□A010□	
	300	Φ290	DE40D	L7□A010□	
150	250	Φ290	DE60D	L7□A020□	
		Φ360	DFA1G	L7□A020□	
		Φ360	DFA6G	L7□A035□	

Appearances of Motor

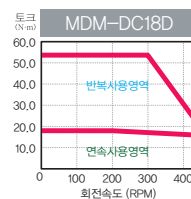
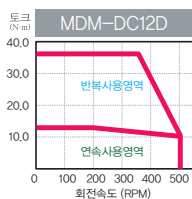
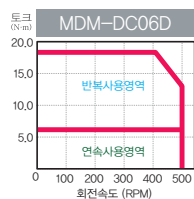
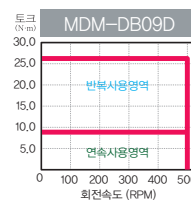
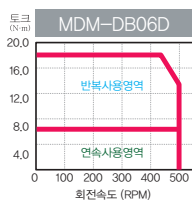
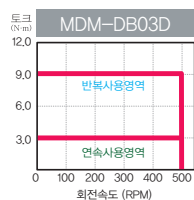


Features of Direct Drive Motor

Motor Designation		MDM-DB□□D□H			MDM-DC□□D□H		
		03	06	09	06	12	18
Applicable Drive (L7□-A□□□□)		L7□A001□	L7□A002□	L7□A004□	L7□A002□	L7□A004□	L7□A008□
Flange Size	mm	Φ135			Φ175		
Rated Output	W	63	126	188	126	251	377
Rated Torque	N-m	3	6	9	6	12	18
Max Torque	N-m	9	18	27	18	36	54
Rated Current	Arms	1.12	1.46	2.63	1.48	2.41	3.0
Max Current	Arms	3.36	4.38	7.89	4.44	7.23	9.0
Rated Speed	rpm	200			200		
Max Speed	rpm	500	500	500	500	500	400
Constant of Torque	N-m/Arms	2.76	4.25	3.57	4.18	5.13	6.12
Inertia	kg-m ² ×10 ⁻⁴	5.74	8.67	11.5	27.32	38.9	50.48
Rated Power Rate	kW/s	15.68	42.35	70.43	13.18	52.71	118.59
Angular acceleration	rad/s ²	191.2	141.6	127.7	455.03	323.9	280.3
positioning accuracy	arc-sec	±15					
positioning repeatability	arc-sec	±1.3					
Axial run-out	mm	0.015					
Radial run-out	mm	0.03					
Allowed Moment Load	N	1500			3300		
Max. Instantaneous	N-m	40			70		
Encoder Type		20-bit single turn serial encoder (Biss/Absolute)					
Weight (Approx.)	kg	6.3	7.2	9.2	8.7	10.6	12.6
Working Environment	Ambient Temp	operating : 0~40[°C] / storage : -20~60[°C]					
	Ambient Humidity	20~80[%] RH(avoid dew-condensation)					
	Atmosphere	Avoid direct sunlight, No corrosive gas, Inflammable gas, Oil mist, or Dust					

* In case of allowable load inertia ratio, please apply within 30 times of rotator inertia

Speed-Torque Characteristics



L7 SERIES SYSTEM

Features of Direct Drive Motor

Motor Designation		MDM-DD□□D□H			MDM-DE□□D□H		MDM-DF□□G□H	
		12	22	34	40	60	A1	A6
Applicable Drive (L7□-A□□□□)		L7□A004□	L7□A008□	L7□A010□	L7□A010□	L7□A020□	L7□A020□	L7□A035□
Flange Size	mm	Φ230			Φ290		Φ360	
Rated Output	W	251	461	712	838	1,257	1,728	2,513
Rated Torque	N-m	12	22	34	40	60	110	160
Max Torque	N-m	36	66	102	120	180	330	480
Rated Current	Arms	2.58	3.33	5.72	5.3	8.33	9.48	14.6
Max Current	Arms	7.74	9.99	17.16	15.9	24.99	28.44	43.8
Rated Speed	rpm	200			200		150	
Max Speed	rpm	500	400	400	300	300	250	250
Constant of Torque	N-m/Arms	4.8	6.81	6.13	7.77	7.42	11.95	11.29
Inertia	kg-m ² ×10 ⁻⁴	54.14	68.15	82.16	311.55	371.71	1410.2	1763.4
Rated Power Rate	kW/s	26.6	71.02	140.7	51.36	96.68	85.9	145.4
Angular acceleration	rad/s ²	450.9	309.6	241.5	778.35	619.1	1281.13	1101.4
positioning accuracy	arc-sec	±15						
positioning repeatability	arc-sec	±1.3						
Axial run-out	mm	0.015						
Radial run-out	mm	0.03						
Allowed Moment Load	N	4000			11000		15000	
Max. Instantaneous	N-m	93			250		350	
Encoder Type		20-bit single turn serial encoder (Biss/Absolute)						
Weight (Approx.)	kg	17.3	19.6	21.9	28.2	35	54	70.3
Working Environment	Ambient Temp	operating : 0~40[°C] / storage : -20~60[°C]						
	Ambient Humidity	20~80[%] RH(avoid dew-condensation)						
	Atmosphere	Avoid direct sunlight, No corrosive gas, Inflammable gas, Oil mist, or Dust						

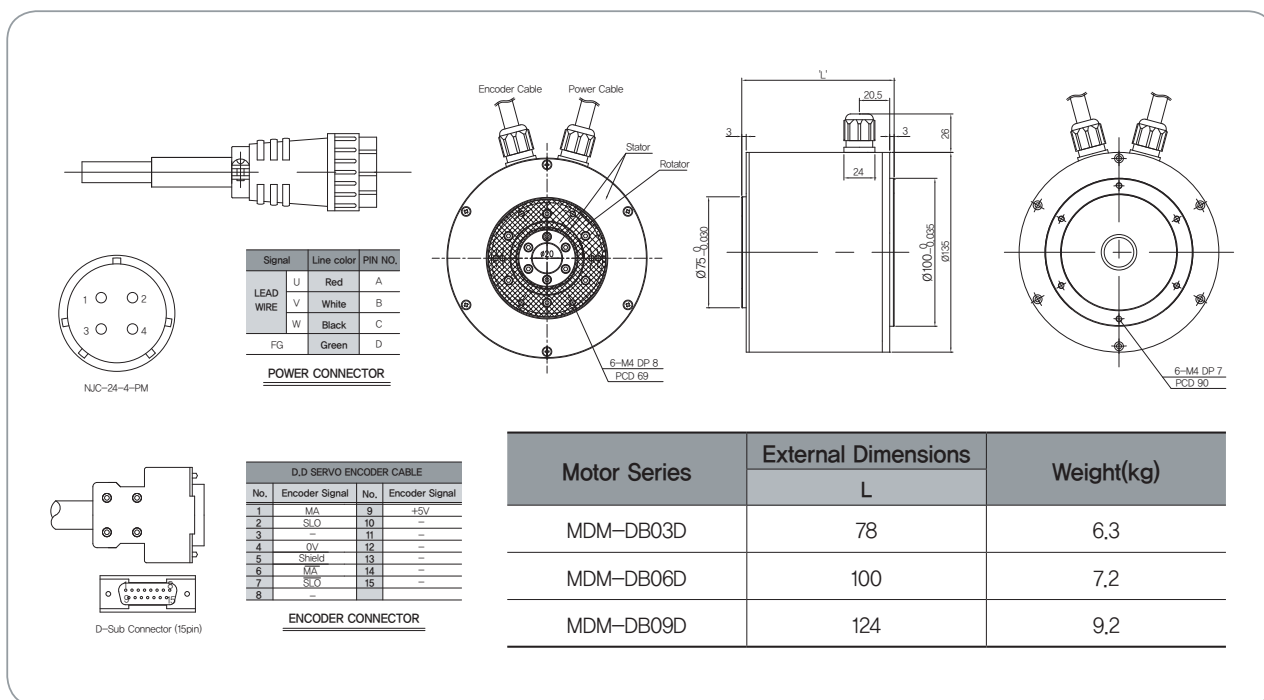
* In case of allowable load inertia ratio, please apply within 30 times of rotator inertia

Speed-Torque Characteristics

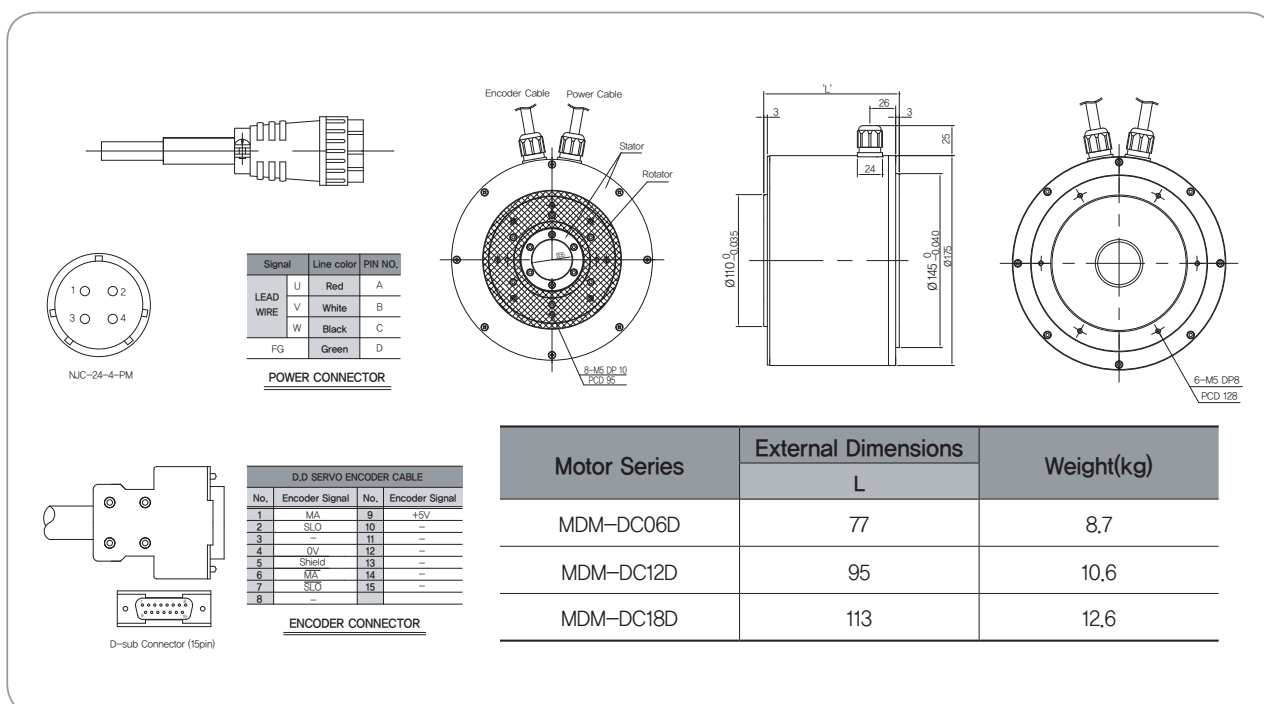


External Dimensions of Direct-Drive Rotary Motor

MDM-DB03D, MDM-DB06D, MDM-DB09D



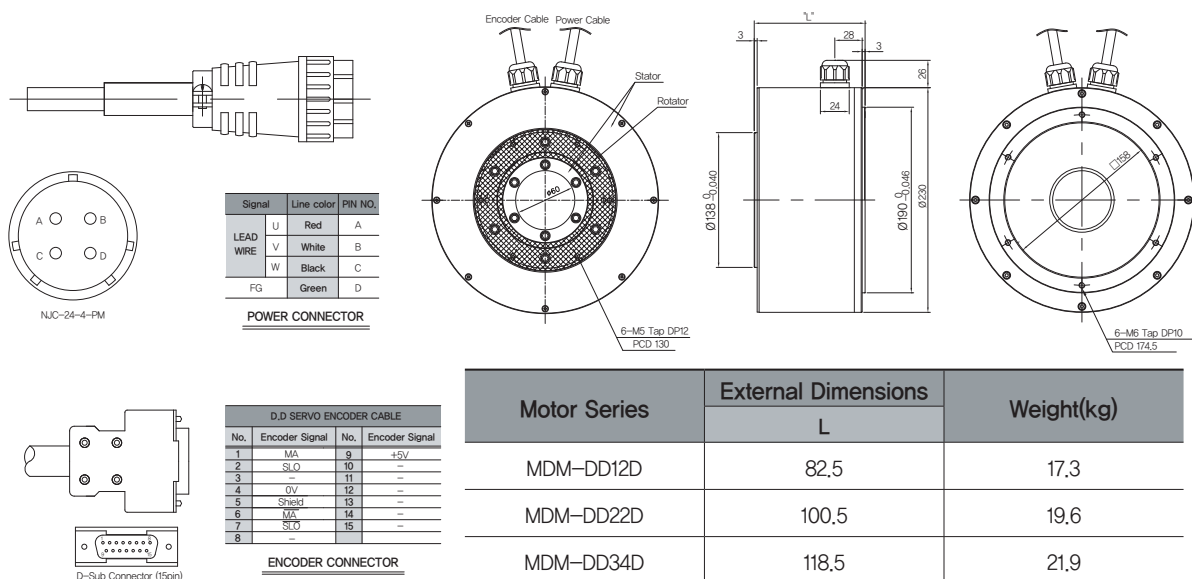
MDM-DC06D, MDM-DC12D, MDM-DC18D



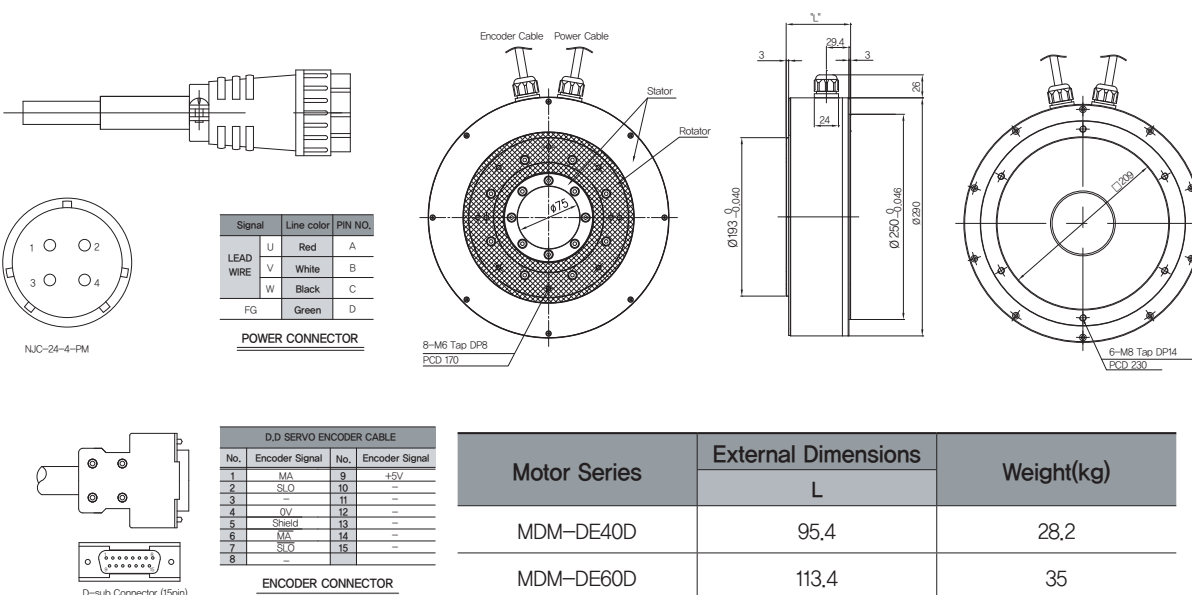
L7 SERIES SYSTEM

External Dimensions of Direct-Drive Rotary Motor

MDM-DD12D, MDM-DD22D, MDM-DD34D



MDM-DE40D, MDM-DE60D



L7 SERIES SYSTEM

Contents

■ Options

Servo motor options

- Signal cable _97
- Power cable _100

Servo drive options

- Signal cable _109
- Connector _110

Other options

- Braking resistance _112
- Noise Filter _114

Servo Motor Option

Signal Cable [Incremental]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications																																																																								
For Signal	Parallel Encoder Cable (Small Capacity)	APCS-E□□□AS	L7SA□□□A L7NHA□□□U L7PA□□□U	All Models of APM-SA APM-SB APM-SC APM-HB SERIES	Motor Side Connector Drive Side Connector(CN2) <table><thead><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr></thead><tbody><tr><td>1</td><td>A</td><td>9</td><td>V</td></tr><tr><td>2</td><td>$\bar{A}$</td><td>10</td><td>$\bar{V}$</td></tr><tr><td>3</td><td>B</td><td>11</td><td>W</td></tr><tr><td>4</td><td>$\bar{B}$</td><td>12</td><td>$\bar{W}$</td></tr><tr><td>5</td><td>Z</td><td>13</td><td>+5V</td></tr><tr><td>6</td><td>$\bar{Z}$</td><td>14</td><td>0V</td></tr><tr><td>7</td><td>U</td><td>15</td><td>SHIELD</td></tr><tr><td>8</td><td>$\bar{U}$</td><td></td><td></td></tr></tbody></table> (Motor Side Connector) <table><thead><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr></thead><tbody><tr><td>1</td><td>W</td><td>8</td><td>$\bar{Z}$</td></tr><tr><td>2</td><td>$\bar{W}$</td><td>9</td><td>Z</td></tr><tr><td>3</td><td>V</td><td>10</td><td>$\bar{B}$</td></tr><tr><td>4</td><td>$\bar{V}$</td><td>11</td><td>B</td></tr><tr><td>5</td><td>U</td><td>12</td><td>$\bar{A}$</td></tr><tr><td>6</td><td>$\bar{U}$</td><td>13</td><td>A</td></tr><tr><td>7</td><td>0V</td><td>14</td><td>+5V</td></tr><tr><td colspan="2">PLATE</td><td colspan="2">SHIELD</td></tr></tbody></table> (Driver Side Connector) 1. Motor Side Connector a. Cap Spec.(15 Position) : 172163-1(AMP) b. Socket Spec. : 170361-1(AMP) 2. Driver Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 7P×0.2SQ or 7P×AWG24	PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	A	9	V	2	$\bar{A}$	10	$\bar{V}$	3	B	11	W	4	$\bar{B}$	12	$\bar{W}$	5	Z	13	+5V	6	$\bar{Z}$	14	0V	7	U	15	SHIELD	8	$\bar{U}$			PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	W	8	$\bar{Z}$	2	$\bar{W}$	9	Z	3	V	10	$\bar{B}$	4	$\bar{V}$	11	B	5	U	12	$\bar{A}$	6	$\bar{U}$	13	A	7	0V	14	+5V	PLATE		SHIELD	
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For Signal	Parallel Encoder Cable (Middle Capacity)	APCS-E□□□BS	L7S□□□□A L7NH□□□□U L7PA□□□□U	All Models of APM-SE, SEP APM-SF, SFP APM-SG, SGP APM-LF APM-LG APM-HE SERIES	Motor Side Connector Drive Side Connector(CN2) <table><thead><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr></thead><tbody><tr><td>A</td><td>A</td><td>M</td><td>V</td></tr><tr><td>B</td><td>$\bar{A}$</td><td>N</td><td>$\bar{V}$</td></tr><tr><td>C</td><td>B</td><td>P</td><td>W</td></tr><tr><td>D</td><td>$\bar{B}$</td><td>R</td><td>$\bar{W}$</td></tr><tr><td>E</td><td>Z</td><td>H</td><td>+5V</td></tr><tr><td>F</td><td>$\bar{Z}$</td><td>G</td><td>0V</td></tr><tr><td>K</td><td>U</td><td>J</td><td>SHIELD</td></tr><tr><td>L</td><td>$\bar{U}$</td><td></td><td></td></tr></tbody></table> (Motor Side Connector) <table><thead><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr></thead><tbody><tr><td>1</td><td>W</td><td>8</td><td>$\bar{Z}$</td></tr><tr><td>2</td><td>$\bar{W}$</td><td>9</td><td>Z</td></tr><tr><td>3</td><td>V</td><td>10</td><td>$\bar{B}$</td></tr><tr><td>4</td><td>$\bar{V}$</td><td>11</td><td>B</td></tr><tr><td>5</td><td>U</td><td>12</td><td>$\bar{A}$</td></tr><tr><td>6</td><td>$\bar{U}$</td><td>13</td><td>A</td></tr><tr><td>7</td><td>0V</td><td>14</td><td>+5V</td></tr><tr><td colspan="2">PLATE</td><td colspan="2">SHIELD</td></tr></tbody></table> (Driver Side Connector) 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A20-29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 7P×0.2SQ or 7P×AWG24	PIN No.	Encoder Signal	PIN No.	Encoder Signal	A	A	M	V	B	$\bar{A}$	N	$\bar{V}$	C	B	P	W	D	$\bar{B}$	R	$\bar{W}$	E	Z	H	+5V	F	$\bar{Z}$	G	0V	K	U	J	SHIELD	L	$\bar{U}$			PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	W	8	$\bar{Z}$	2	$\bar{W}$	9	Z	3	V	10	$\bar{B}$	4	$\bar{V}$	11	B	5	U	12	$\bar{A}$	6	$\bar{U}$	13	A	7	0V	14	+5V	PLATE		SHIELD	
					PIN No.	Encoder Signal	PIN No.	Encoder Signal																																																																					
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D	$\bar{B}$	R	$\bar{W}$																																																																										
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PIN No.	Encoder Signal	PIN No.	Encoder Signal																																																																										
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2	$\bar{W}$	9	Z																																																																										
3	V	10	$\bar{B}$																																																																										
4	$\bar{V}$	11	B																																																																										
5	U	12	$\bar{A}$																																																																										
6	$\bar{U}$	13	A																																																																										
7	0V	14	+5V																																																																										
PLATE		SHIELD																																																																											

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

L7 SERIES SYSTEM

Servo Motor Option

Signal Cable [Serial]

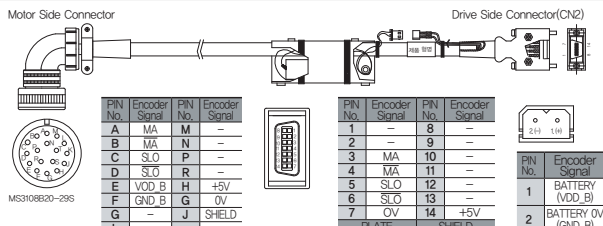
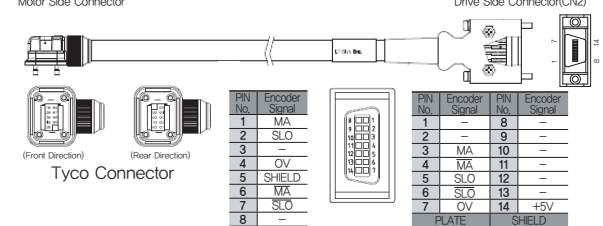
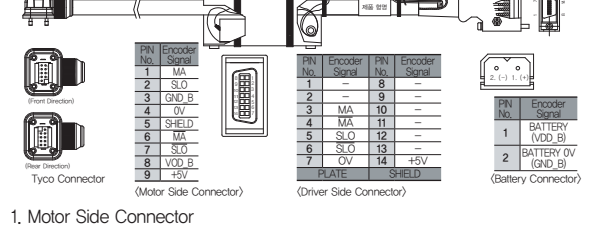
Type	Product Type	Model Name ^[Note1]	Applicable Drive	Applicable Motor	Specifications																																																																								
For Signal	S Series Motor S-turn Encoder Cable (Small Ca-pacity)	APCS-E□□□CS	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-SA APM-SB APM-SC SERIES	Motor Side Connector Drive Side Connector(CN2) 1. Motor Side Connector a. Cap Spec.(9 Position) : 172161-1(AMP) b. Socket Spec. : 170361-1(AMP) 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 3P×0.2SQ or 3P×24AWG <table><tr><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>MA</td></tr><tr><td>2</td><td>MA</td></tr><tr><td>3</td><td>SLO</td></tr><tr><td>4</td><td>SLO</td></tr><tr><td>5</td><td>—</td></tr><tr><td>6</td><td>—</td></tr><tr><td>7</td><td>+5V</td></tr><tr><td>8</td><td>0V</td></tr><tr><td>9</td><td>SHIELD</td></tr></table> (Motor Side Connector) <table><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>—</td><td>8</td><td>—</td></tr><tr><td>2</td><td>—</td><td>9</td><td>—</td></tr><tr><td>3</td><td>MA</td><td>10</td><td>—</td></tr><tr><td>4</td><td>MA</td><td>11</td><td>—</td></tr><tr><td>5</td><td>SLO</td><td>12</td><td>—</td></tr><tr><td>6</td><td>SLO</td><td>13</td><td>—</td></tr><tr><td>7</td><td>0V</td><td>14</td><td>+5V</td></tr><tr><td>PLATE</td><td>SHIELD</td><td></td><td></td></tr></table> (Drive Side Connector)	PIN No.	Encoder Signal	1	MA	2	MA	3	SLO	4	SLO	5	—	6	—	7	+5V	8	0V	9	SHIELD	PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	—	8	—	2	—	9	—	3	MA	10	—	4	MA	11	—	5	SLO	12	—	6	SLO	13	—	7	0V	14	+5V	PLATE	SHIELD																		
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7	0V	14	+5V																																																																										
PLATE	SHIELD																																																																												
For Signal	S Series Motor M-turn Encoder Cable (Small Ca-pacity)	APCS-E□□□CS1	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-SA APM-SB APM-SC SERIES	Motor Side Connector Drive Side Connector(CN2) 1. Motor Side Connector a. CAP Spec.(9 Position) : 172161-1(AMP) b. Socket Spec. : 170361-1(AMP) 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX) <table><tr><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>MA</td></tr><tr><td>2</td><td>MA</td></tr><tr><td>3</td><td>SLO</td></tr><tr><td>4</td><td>SLO</td></tr><tr><td>5</td><td>VDD B</td></tr><tr><td>6</td><td>GND B</td></tr><tr><td>7</td><td>+5V</td></tr><tr><td>8</td><td>0V</td></tr><tr><td>9</td><td>SHIELD</td></tr></table> (Motor Side Connector) <table><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>—</td><td>8</td><td>—</td></tr><tr><td>2</td><td>—</td><td>9</td><td>—</td></tr><tr><td>3</td><td>MA</td><td>10</td><td>—</td></tr><tr><td>4</td><td>MA</td><td>11</td><td>—</td></tr><tr><td>5</td><td>SLO</td><td>12</td><td>—</td></tr><tr><td>6</td><td>SLO</td><td>13</td><td>—</td></tr><tr><td>7</td><td>0V</td><td>14</td><td>+5V</td></tr><tr><td>PLATE</td><td>SHIELD</td><td></td><td></td></tr></table> (Drive Side Connector) <table><tr><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>BATTERY (VDD B)</td></tr><tr><td>2</td><td>BATTERY 0V (GND B)</td></tr></table> (Battery Connector)	PIN No.	Encoder Signal	1	MA	2	MA	3	SLO	4	SLO	5	VDD B	6	GND B	7	+5V	8	0V	9	SHIELD	PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	—	8	—	2	—	9	—	3	MA	10	—	4	MA	11	—	5	SLO	12	—	6	SLO	13	—	7	0V	14	+5V	PLATE	SHIELD			PIN No.	Encoder Signal	1	BATTERY (VDD B)	2	BATTERY 0V (GND B)										
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PLATE	SHIELD																																																																												
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1	BATTERY (VDD B)																																																																												
2	BATTERY 0V (GND B)																																																																												
For Signal	S/F Series Motor S-turn Encoder Cable (Middle Capacity)	APCS-E□□□DS	L7S□□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-SE, FE, SEP, FEP APM-SF, FF SFP, FFP APM-SG, FG SGP, FGP APM-LF APM-LG SERIES	Motor Side Connector Drive Side Connector(CN2) 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A20-29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 3P×0.2SQ or 3P×24AWG <table><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>A</td><td>MA</td><td>M</td><td>—</td></tr><tr><td>B</td><td>MA</td><td>N</td><td>—</td></tr><tr><td>C</td><td>SLO</td><td>P</td><td>—</td></tr><tr><td>D</td><td>SLO</td><td>R</td><td>—</td></tr><tr><td>E</td><td>—</td><td>H</td><td>+5V</td></tr><tr><td>F</td><td>—</td><td>G</td><td>0V</td></tr><tr><td>K</td><td>—</td><td>J</td><td>SHIELD</td></tr><tr><td>L</td><td>—</td><td></td><td></td></tr></table> (Motor Side Connector) <table><tr><th>PIN No.</th><th>Encoder Signal</th><th>PIN No.</th><th>Encoder Signal</th></tr><tr><td>1</td><td>—</td><td>8</td><td>—</td></tr><tr><td>2</td><td>—</td><td>9</td><td>—</td></tr><tr><td>3</td><td>MA</td><td>10</td><td>—</td></tr><tr><td>4</td><td>MA</td><td>11</td><td>—</td></tr><tr><td>5</td><td>SLO</td><td>12</td><td>—</td></tr><tr><td>6</td><td>SLO</td><td>13</td><td>—</td></tr><tr><td>7</td><td>0V</td><td>14</td><td>+5V</td></tr><tr><td>PLATE</td><td>SHIELD</td><td></td><td></td></tr></table> (Drive Side Connector)	PIN No.	Encoder Signal	PIN No.	Encoder Signal	A	MA	M	—	B	MA	N	—	C	SLO	P	—	D	SLO	R	—	E	—	H	+5V	F	—	G	0V	K	—	J	SHIELD	L	—			PIN No.	Encoder Signal	PIN No.	Encoder Signal	1	—	8	—	2	—	9	—	3	MA	10	—	4	MA	11	—	5	SLO	12	—	6	SLO	13	—	7	0V	14	+5V	PLATE	SHIELD		
PIN No.	Encoder Signal	PIN No.	Encoder Signal																																																																										
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PLATE	SHIELD																																																																												

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

Servo Motor Option

Signal Cable [Serial]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications
For Signal	S/F Series Motor M-turn Encoder Cable (Middle Capacity)	APCS-E□□□DS1	L7S□□□□B L7NA□□□□B L7NH□□□□U L7PA□□□□U	All Models of APM-SE, FE SEP, FEP APM-SF, FF SFP, FFP APM-SG, FG, SGP, FGP APM-LF APM-LG SERIES	Motor Side Connector  MS3108B20-29S (Motor Side Connector) (Driver Side Connector) (Battery Connector) 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A20-29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX)
For Signal	F Series Motor S-turn Encoder Cable (Small Capacity)	APCS-E□□□ES-□	L7SA□□□□B L7NA□□□□B L7NHA□□□□U L7PA□□□□U	All Models of APM-FAL APM-FB, FBL APM-FC, FCL SERIES	Motor Side Connector  (Front Direction) (Rear Direction) Tyco Connector (Motor Side Connector) (Driver Side Connector) 1. Motor Side Connector a. Cap Spec. : 2201825-1(Tyco) b. Socket Spec. : 2174065-4(Tyco) 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 3P×0.2SQ or 3P×24AWG
For Signal	F Series Motor M-turn Encoder Cable (Small Capacity)	APCS-E□□□ES1-□	L7SA□□□□B L7NA□□□□B L7NHA□□□□U L7PA□□□□U	All Models of APM-FAL APM-FB, FBL APM-FC, FCL SERIES	Motor Side Connector  (Front Direction) (Rear Direction) Tyco Connector (Motor Side Connector) (Driver Side Connector) (Battery Connector) 1. Motor Side Connector a. Cap Spec. : 2201825-1(Tyco) b. Socket Spec. : 2174065-4(Tyco) 2. Drive Side Connector(CN2) a. Cap Spec. : 10314-52A0-008(3M) or SM-14J(Suntone) b. Connector Spec. : 10114-3000VE(3M) or SM-14J(Suntone) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX)

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In case of □ marked product, the connector can draw in a direction of Front(load) / Rear(half load).(Front Type : No mark, Rear Type : -R)

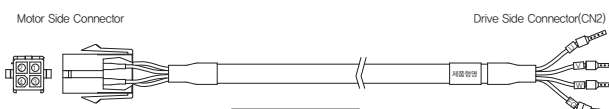
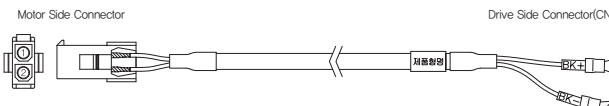
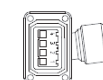
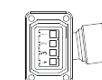
Note3) In case of FAL Type, the connector can draw in a direction of only front

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

L7 SERIES SYSTEM

Servo Motor Option

Power Cable [200V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications											
For Power	S Series Power Cable (Small Capacity)	APCS-P□□□GS	L7SA□□□A L7NHA□□□U L7PA□□□U	All Models of APM-SA APM-SB APM-SC APM-HB SERIES	Motor Side Connector 	<table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>1</td><td>U</td></tr><tr><td>2</td><td>V</td></tr><tr><td>3</td><td>W</td></tr><tr><td>4</td><td>Ground</td></tr></table>	PIN No.	Signal	1	U	2	V	3	W	4	Ground
					PIN No.	Signal										
1	U															
2	V															
3	W															
4	Ground															
1. Motor Side Connector a. Cap Spec.(4 Position) : 172159-1(AMP) b. Socket Spec. : 170362-1(AMP) 2. Drive Side Connector(U, V, W, FG) a. U, V, W Pin Spec. : 1512 b. FG Pin Spec. : 1.5x4(Ring Terminal) 3. Cable Spec. : 4C×0.75SQ or 4C×18AWG																
For Power	S Series Brake Cable (Small Capacity)	APCS-P□□□KB	L7SA□□□A L7NHA□□□U L7PA□□□U	All Models of APM-SA APM-SB APM-SC APM-HB SERIES	Motor Side Connector 	<table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>1</td><td>BK+</td></tr><tr><td>2</td><td>BK-</td></tr></table>	PIN No.	Signal	1	BK+	2	BK-				
					PIN No.	Signal										
1	BK+															
2	BK-															
1. Motor Side Connector a. Cap Spec.(2 Position) : 172157-1(AMP) b. Socket Spec. : 170362-1(AMP) 2. Drive Side Connector a. Connecting terminal Spec. : 1.5x3(Ring Terminal) 3. Cable Spec. : 2C×0.75SQ or 2C×18AWG																
For Power	F Series Power Cable (Small Capacity)	APCS-P□□□FS-□	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-FB APM-FC SERIES	Motor Side Connector 	 (Front Direction)  (Rear Direction) <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>1</td><td>W</td></tr><tr><td>2</td><td>V</td></tr><tr><td>3</td><td>U</td></tr><tr><td>4</td><td>Ground</td></tr></table>	PIN No.	Signal	1	W	2	V	3	U	4	Ground
					PIN No.	Signal										
1	W															
2	V															
3	U															
4	Ground															
1. Motor Side Connector a. Plug Spec. : KN5FT04SJ1(JAE) b. Socket Spec. : ST-KN-S-C1B-3500(JAE) 2. Drive Side Connector(U, V, W, FG) a. U, V, W Pin Spec. : 1512 b. FG Pin Spec. : 1.5×4(Ring Terminal) 3. Cable Spec. : 4C×0.75SQ or 4C×18AWG																

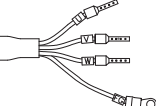
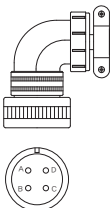
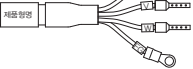
Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In case of □ marked product, the connector can draw in a direction of Front(load) / Rear(half load).
(Front Type : No mark, Rear Type : -R)

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

Servo Motor Option

Power Cable [200V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications	
For Power	L Series Power Cable (Small Capacity)	APCS-P□□□LS-□	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APMC-FAL APMC-FBL APMC-FCL SERIES	Motor Side Connector	Drive Side Connector
						
					1. Motor Side Connector a. Plug Spec. : SM-JN8FT04(Suntone) b. Socket Spec. : SMS-201(Suntone) 2. Drive Side Connector (U,V,W,FG) a. U, V, W Pin Spec. : 1512(Ferrule) b. FG Pin Spec. : 1.5x4 (Ring Terminal) 3. Cable Spec. : 4Cx0.75SQ or 4Cx18AWG 4. In case of FAL products, Please install Power Cable first before connecting Encoder Cable.	
For Power	Brake Cable for Flat Motor (Small Capacity)	APCS-B□□□QS-□	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-FAL APM-FB, FBL APM-FC, FCL SERIES	Motor Side Connector	Brake Power side Connector
					 ~MOTOR측 연결부~	
					1. Motor Side Connector a. Plug Spec. : KN5FT02SJ1 b. Socket Spec. : ST-KN-S-C1B-3500 2. Drive Side Connector a. Connecting terminal Spec. : 1.5×3(Ring Terminal) 3. Cable Spec. : 2C×0.5SQ or 2C×20AWG	
For Power	Power Cable (Middle Capacity)	APCS-P□□□HS	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-SE APM-FE APM-HE SERIES	Motor Side Connector	Drive Side Connector
						
					1. Motor Side Connector a. Plug Spec. : MS3108A20-4S 2. Drive Side Connector a. Connecting terminal Spec. : 22×6(Ring Terminal) 3. Cable Spec. : 4C×25SQ or 4C×14AWG	

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In case of □ marked product, the connector can draw in a direction of Front(load) / Rear(half load).
(Front Type : No mark, Rear Type : -R)

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

L7 SERIES SYSTEM

Servo Motor Option

Power Cable [200V]

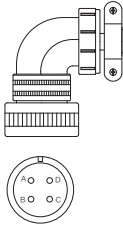
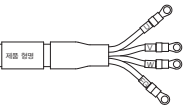
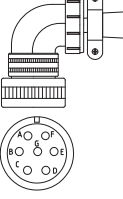
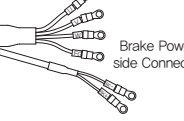
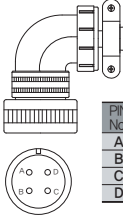
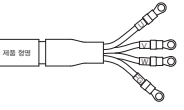
Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications														
For Power	Power Cable (Brake Type)	APCS-P□□□NB	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All Models of APM-SE APM-FE SERIES	Motor Side Connector Drive Side Connector Brake Power side Connector <table><thead><tr><th>PIN No.</th><th>Signal</th></tr></thead><tbody><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr><tr><td>E</td><td>BK+</td></tr><tr><td>F</td><td>BK-</td></tr></tbody></table> 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A20-15S 2. Drive Side Connector a. U, V, W Pin Spec. : 2512 b. Cable Spec. : 4C×2.5SQ or 4C×14AWG c. FG Pin Spec. : 2.5×4(Ring Terminal) 3. Brake Power side Connector a. BK Pin Spec. : 1.5×3(Ring Terminal) b. Cable Spec. : 2C×0.75SQ or 2C×18AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
					PIN No.	Signal													
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		
For Power	Power Cable (Middle Capacity)	APCS-P□□□IS	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	APM-SF30A SF22D, LF35D SF20G, LF30G SF12M, SF20M LF30M, SG22D LG35D, SG20G LG30G, SG12M SG20M, LG30M FF30A, FF22D FF35D, FF20G FF30G, FF12M FF20M, FF30M FG22D, FG35D FG20G, FG30G FG12M, FG20M FG30M	Motor Side Connector Drive Side Connector <table><thead><tr><th>PIN No.</th><th>Signal</th></tr></thead><tbody><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></tbody></table> 1. Motor Side Connector a. Plug Spec. : MS3108A22-22S 2. Drive Side Connector a. U, V, W Pin Spec. : 2512 b. FG Pin Spec. : 2.5×4(Ring Terminal) 3. Cable Spec. : 4C×2.5SQ or 4C×14AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
					PIN No.	Signal													
A	U																		
B	V																		
C	W																		
D	Ground																		
For Power	Power Cable (Brake Type)	APCS-P□□□PB	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	APM-SF30A SF22D, LF35D SF20G, LF30G SF12M, SF20M LF30M, FF30A FF22D, FF35D FF20G, FF30G FF12M, FF20M FF30M	Motor Side Connector Drive Side Connector Brake Power side Connector <table><thead><tr><th>PIN No.</th><th>Signal</th></tr></thead><tbody><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr><tr><td>E</td><td>BK+</td></tr><tr><td>F</td><td>BK-</td></tr></tbody></table> 1. Motor Side Connector(MS : Military Standard) a. PLUG Spec. : MS3108A24-10S 2. Drive Side Connector a. U, V, W Pin Spec. : 2512 b. Cable Spec. : 4C×2.5SQ or 4C×14AWG c. FG Pin Spec. : 2.5×4(Ring Terminal) 3. Brake Power side Connector a. BK Pin Spec. : 1.5×3(Ring Terminal) b. Cable Spec. : 2C×0.75S or 2C×18AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
					PIN No.	Signal													
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

Servo Motor Option

Power Cable [200V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications										
For Power	Power Cable (Middle Capacity)	APCS-P□□□JS	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	APM-SF50A SF55D, SF75D SF44G, SF60G SF44M, SG55D SG75D, SG44G SG60G, SG44M FF50A, FF55D FF75D, FF44G FF60G, FF44M FG55D, FG75D FG44G, FG60G FG44M	Motor Side Connector  Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A22-22S 2. Drive Side Connector a. Connecting terminal Spec. : 6×5(Ring Terminal) 3. Cable Spec. : 4C×6SQ or 4C×10AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground
				PIN No.	Signal										
A	U														
B	V														
C	W														
D	Ground														
APM-SF50A SF55D, SF75D SF44G, SF60G SF44M, FF50A FF50D, FF75D FF44G, FF60G FF40M	Motor Side Connector  Drive Side Connector  Brake Power side Connector  1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A24-10S 2. Drive Side Connector a. Connecting terminal Spec. : 6×5(Ring Terminal) b. 4CX6SQ or 4CX10AWG 3. Brake Power side Connector a. Connecting terminal Spec. : 1.5×3(Ring Terminal) b. Cable Spec. : 2C×0.75SQ or 2C×18AWG														
For Power	Power Cable (Middle Capacity)	APCS-P□□□MS	L7SA□□□A L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	APM-SG60M FG60M, SF75G FF75G	Motor Side Connector  Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108A32-17S 2. Drive Side Connector a. Connecting terminal Spec. : 10×5(Ring Terminal) 3. Cable Spec. : 4C×6SQ or 4C×10AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground
PIN No.	Signal														
A	U														
B	V														
C	W														
D	Ground														

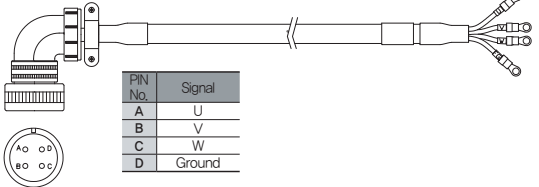
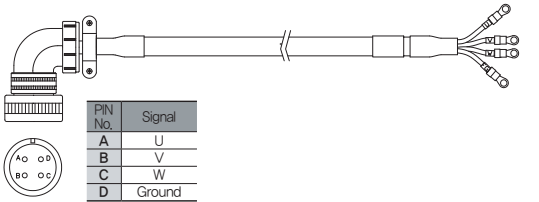
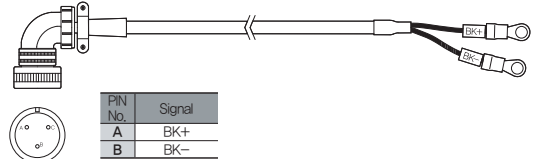
Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

L7 SERIES SYSTEM

Servo Motor Option

Power Cable [200V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications
For Power	Power Cable	APCS-P□□□OS	L7NHA□□□U L7PA□□□U	APM-SG85G APM-FG85G APM-SG110D APM-FG110D APM-SG110G APM-FG110G	Motor Side Connector Drive Side Connector 
					1. Motor Side Connector a. Plug Spec. : MS3108A 32-17S 2. Drive Side Connector a. Connecting terminal Spec. : 14×6(Ring Terminal) 3. Cable Spec. : 4C×16SQ or 4C×5AWG
For Power	Power Cable	APCS-P□□□VS	L7NHA□□□U L7PA□□□U	APM-SG150G APM-FG150G	Motor Side Connector Drive Side Connector 
					1. Motor Side Connector (MS: Military Standard) a. Plug Spec. : MS3108A 32-17S 2. Drive Side Connector a. Connecting terminal Spec. : 14 x 6(Ring Terminal) 3. Power Cable Spec. : 4Cx25SQ or 4C x 3AWG
For Power	Power Cable (Brake Type)	APCS-P□□□SB	L7SA□□□A L7SA□□□B L7NA□□□B L7PA□□□U	APM-SG APM-LG APM-FG SERIES	Motor Side Connector Drive Side Connector 
					1. Motor Side Connector(MS: Military Standard) a. Plug Spec. : MS3108A 14S-7S 2. Drive Side Connector a. Connecting terminal Spec. : 1.5×3(Ring Terminal) 3. Cable Spec. : 2C×0.75SQ or 2C×18AWG

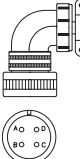
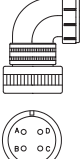
Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20

Servo Motor Option

Power Cable [400V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications														
For Power	Power Cable	APCF-P□□□HS	L7SB□□□B L7NHB□□□U L7PB□□□U	All Models of APM-SEP APM-FEP SERIES	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> 1. Motor Side Connector (MS: Military Standard) a. Plug Spec. : MS3108A 20-4S 2. Drive Side Connector (U,V,W,FG) a. U, V, W Pin Spec. : 1512(Ferrule) b. FG Pin Spec. : 1.5x4(Ring Terminal) 3. Cable Spec. : 4Cx1.5SQ or 4Cx15AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
	PIN No.	Signal																	
A	U																		
B	V																		
C	W																		
D	Ground																		
For Power	Power Cable (Brake Type)	APCF-P□□□NB	L7SB□□□B L7NHB□□□U L7PB□□□U	All Models of APM-SEP APM-FEP SERIES	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr><tr><td>E</td><td>BK+</td></tr><tr><td>F</td><td>BK-</td></tr></table> 1. Motor Side Connector (MS: Military Standard) a. Plug Spec. : MS3108A 20-15S 2. Drive Side Connector a. U, V, W Pin Spec. : 1512(Ferrule) b. FG Pin Spec. : 1.5 x 4(Ring Terminal) 3. Power Cable Spec. : 4Cx1.5SQ or 4Cx15AWG 4. Brake Power side Connector a. Connecting terminal Spec. : 1.5 x 3(Ring Terminal) 5. Brake Cable Spec. : 2Cx0.75SQ or 2Cx18AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
	PIN No.	Signal																	
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		
For Power	Power Cable	APCF-P□□□IS	L7SB□□□B L7NHB□□□U L7PB□□□U	APM-[S/F]FP30A APM-[S/F]FP22D APM-[S/F]FP35D APM-[S/F]FP20G APM-FFP30G APM-[S/F]FP12M APM-[S/F]FP20M APM-[S/F]GP22D APM-[S/F]GP35D APM-[S/F]GP20G APM-FGP30G APM-[S/F]GP12M APM-[S/F]GP20M	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> 1. Motor Side Connector (MS: Military Standard) a. Plug Spec. : MS3108A 22-22S 2. Drive Side Connector (U,V,W,FG) a. U, V, W Pin Spec : 2512(Ferrule) b. FG Pin Spec. : 2.5x4 (Ring Terminal) 3. Cable Spec. : 4Cx2.5SQ or 4Cx14AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
	PIN No.	Signal																	
A	U																		
B	V																		
C	W																		
D	Ground																		

Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

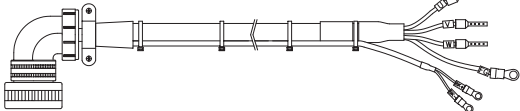
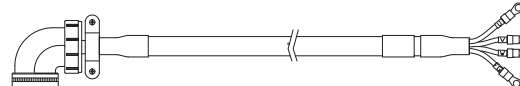
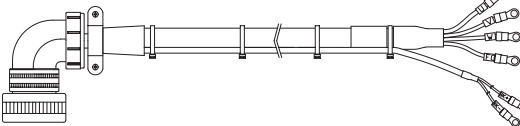
Note2) In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20

L7 SERIES SYSTEM

Servo Motor Option

Power Cable [400V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications														
For Power	Power Cable (Brake Type)	APCF-P□□□PB	L7SB□□□B L7NHB□□□U L7PB□□□U	APM-[S/F]FP30A APM-[S/F]FP22D APM-[S/F]FP35D APM-[S/F]FP20G APM-FFP30G APM-[S/F]FP12M APM-[S/F]FP20M	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr><tr><td>E</td><td>BK+</td></tr><tr><td>F</td><td>BK-</td></tr></table> - Motor Side Connector (MS: Military Standard) - Plug Spec. : MS3108A 24-10S - Drive Side Connector - U, V, W Pin Spec. : 2512(Ferrule) - FG Pin Spec. : 2.5 x 4(Ring Terminal) - Power Cable Spec. : 4Cx2.5SQ or 4Cx14AWG - Brake Power side Connector - Connecting terminal Spec. : 1.5 x 3(Ring Terminal) - Brake Cable Spec. : 2Cx0.75SQ or 2Cx18AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		
For Power	Power Cable (Middle Capacity)	APCF-P□□□JS	L7SB□□□B L7NHB□□□U L7PB□□□U	APM-[S/F]FP50A APM-[S/F]FP50D APM-[S/F]FP75D APM-SFP30G APM-[S/F]FP44G APM-[S/F]FP60G APM-[S/F]FP30M APM-[S/F]FP44M APM-[S/F]GP55D APM-[S/F]GP75D APM-SGP30G APM-[S/F]GP44G APM-[S/F]GP60G APM-[S/F]GP30M APM-[S/F]GP44M	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> - Motor Side Connector (MS: Military Standard) - Plug Spec. : MS3108A 22-22S - Drive Side Connector (U,V,W,FG) - U, V, W Pin Spec. : 4.0x 5(Ring Terminal) - Cable Spec. : 4Cx4.0SQ or 4Cx11AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground				
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
For Power	Power Cable (Brake Type)	APCF-P□□□LB	L7SB□□□B L7NHB□□□U L7PB□□□U	APM-[S/F]FP50A APM-[S/F]FP55D APM-[S/F]FP75D APM-SGP30G APM-[S/F]FP44G APM-[S/F]FP60G APM-[S/F]FP30M APM-[S/F]FP44M	Motor Side Connector Drive Side Connector  <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr><tr><td>E</td><td>BK+</td></tr><tr><td>F</td><td>BK-</td></tr></table> - Motor Side Connector (MS: Military Standard) - Plug Spec. : MS3108A 24-10S - Drive Side Connector - U, V, W Pin Spec. : 4.0x5(Ring Terminal) - Power Cable Spec. : 4Cx4.0SQ or 4Cx11AWG - Brake Power side Connector - Connecting terminal Spec. : 1.5 x 3(Ring Terminal) - Brake Cable Spec. : 2Cx0.75SQ or 2Cx18AWG	PIN No.	Signal	A	U	B	V	C	W	D	Ground	E	BK+	F	BK-
PIN No.	Signal																		
A	U																		
B	V																		
C	W																		
D	Ground																		
E	BK+																		
F	BK-																		

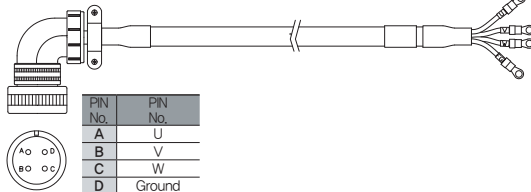
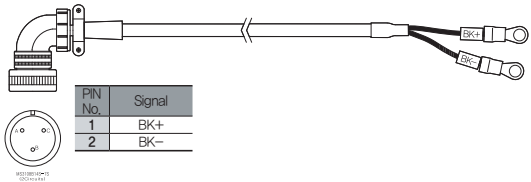
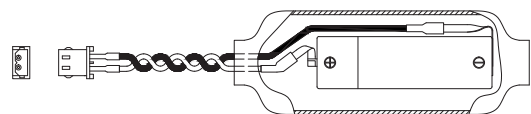
Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20

Servo Motor Option

Power Cable [400V]

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Applicable Motor	Specifications									
For Power	Power Cable (Middle Capacity)	APCF— P□□□MS	L7SB□□□B L7NHB□□□U L7PB□□□U	APM—[S/F]FP75G [S/F]GP110D [S/F]GP85G [S/F]GP110G [S/F]GP150G [S/F]GP60M	Motor Side Connector	Drive Side Connector								
					 <table><tr><th>PIN No.</th><th>PIN No.</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Ground</td></tr></table> 1. Motor Side Connector (MS: Military Standard) a. PLUG Spec. : MS3108A 32–17S 2. Drive Side Connector(U,V,W,FG) a. U, V, W Pin Spec. : 10x5(Ring Termianl) 3. Cable Spec. : 4Cx10SQ or 4Cx7AWG	PIN No.	PIN No.	A	U	B	V	C	W	D
PIN No.	PIN No.													
A	U													
B	V													
C	W													
D	Ground													
For Power	Brake Cable (same with 200V)	APCS— P□□□SB	L7SB□□□B L7NHB□□□U L7PB□□□U	All Models of APM—SGP APM—FGP SERIES	Motor Side Connector	Drive Side Connector								
					 <table><tr><th>PIN No.</th><th>Signal</th></tr><tr><td>1</td><td>BK+</td></tr><tr><td>2</td><td>BK–</td></tr></table> 1. Motor Side Connector (MS: Military Standard) a. PLUG Spec. : MS3108A 14–17S 2. Drive Side Connector(U,V,W,FG) a. Connecting terminal Spec. : 1.5x3(Ring Terminal) 3. Cable Spec. :2Cx0.75SQ or 2Cx19AWG	PIN No.	Signal	1	BK+	2	BK–			
PIN No.	Signal													
1	BK+													
2	BK–													
Bat- tery For Encoder	Battery Ass'y	APCS— BATT36	All L7 Drives for M–turn	All Models of APM–F Series	 <table><tr><th>PIN No.</th><th>Signal</th><th>Color</th></tr><tr><td>1</td><td>+</td><td>Red</td></tr><tr><td>2</td><td>–</td><td>Black</td></tr></table> 1. PLUG Spec. : 5264–02 (Molex) 2. PLUG Pin Spec. : 5263PBT (Molex) 3. Battery Spec. : ER6V/3.6V, 2000mAh (TOSHIBA)	PIN No.	Signal	Color	1	+	Red	2	–	Black
					PIN No.	Signal	Color							
1	+	Red												
2	–	Black												

Note1) □□□ of Model Name indicates the kind and length of cable, And the declaration is as below.

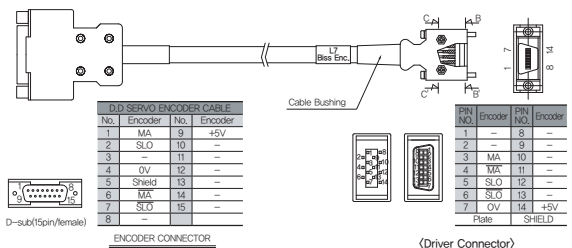
Note2) In case of 400V products, you can use Robotic Cable only.

Cable Length(m)	3	5	10	20
General Cable(N)	N03	N05	N10	N20
Robotic Cable(F)	F03	F05	F10	F20

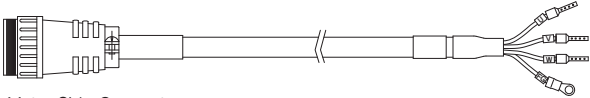
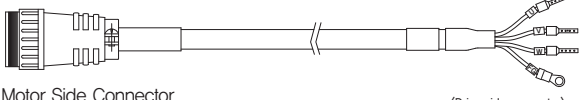
L7 SERIES SYSTEM

Servo Motor Option

DDMotor Signal Cable

Type	Product type	Model Name ^(Note1)	Applicable Motor	Specifications	Specifications																																				
For Signal	L7 Encoder Cable	APCS- E□□ZS	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	All models of DD motor	 D.D. SERVO ENCODER CABLE <table><thead><tr><th>No.</th><th>Encoder</th><th>No.</th><th>Encoder</th></tr></thead><tbody><tr><td>1</td><td>MA</td><td>9</td><td>+5V</td></tr><tr><td>2</td><td>SLO</td><td>10</td><td>—</td></tr><tr><td>3</td><td>—</td><td>11</td><td>—</td></tr><tr><td>4</td><td>OV</td><td>12</td><td>—</td></tr><tr><td>5</td><td>Shield</td><td>13</td><td>—</td></tr><tr><td>6</td><td>MA</td><td>14</td><td>—</td></tr><tr><td>7</td><td>SLO</td><td>15</td><td>—</td></tr><tr><td>8</td><td>—</td><td>—</td><td>—</td></tr></tbody></table> ENCODER CONNECTOR (Motor Connector) Bliss Serial Encoder Encoder Cable Connector (Driver Connector) D-sub(15pin/female) Cable Bushing 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000	No.	Encoder	No.	Encoder	1	MA	9	+5V	2	SLO	10	—	3	—	11	—	4	OV	12	—	5	Shield	13	—	6	MA	14	—	7	SLO	15	—	8	—	—	—
					No.	Encoder	No.	Encoder																																	
1	MA	9	+5V																																						
2	SLO	10	—																																						
3	—	11	—																																						
4	OV	12	—																																						
5	Shield	13	—																																						
6	MA	14	—																																						
7	SLO	15	—																																						
8	—	—	—																																						
					1. Motor Side Connector a. Connector(D-SUB) : DA-15PF-N(Female connector) b. Connector CASE(D-SUB) : SK-15H-1A 2. Drive Side Connector a. CASE Spec. : 10314-52A0-008(3M) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 3P×0.2SQ																																				

DDMotor Power Cable

Type	Product type	Model Name(Notel)	Applicable Motor	Specifications	Specifications																	
For Signal	L7 Power Cable	APCS-P□□□YS	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	DB03D DB06D DB09D DC06D DC12D DC18D DD12D DD22D DD34D DE40D DE60D	 1. Motor Side Connector a. PLUG Spec. : NJC-24-4-ADF(Female connector) 2. Drive Side Connector a. U, V, W Pin PG Pin Spec. : UA-F2012(Seoil) b. FG Spec. : 1.5×4 3. Cable Spec. : 4C×1.5SQ, LAPP Cable(P/N : 00257001) <table><tr><th>Item</th><th>Lead Wire Signal</th><th>Pin NO.</th><th>Line color</th></tr><tr><td rowspan="4">Motor</td><td>U</td><td>1</td><td>Red</td></tr><tr><td>V</td><td>2</td><td>White</td></tr><tr><td>W</td><td>3</td><td>Black</td></tr><tr><td>Ground</td><td>4</td><td>Green</td></tr></table>	Item	Lead Wire Signal	Pin NO.	Line color	Motor	U	1	Red	V	2	White	W	3	Black	Ground	4	Green
				Item	Lead Wire Signal	Pin NO.	Line color															
Motor	U	1	Red																			
	V	2	White																			
	W	3	Black																			
	Ground	4	Green																			
For Signal	L7 Power Cable	APCS-P□□□ZS	L7SA□□□B L7NA□□□B L7NHA□□□U L7PA□□□U	DFA1G DFA6G	 1. Motor Side Connector a. PLUG Spec. : NJC-24-4-ADF(Female connector) 2. Drive Side Connector a. U, V, W Pin PG Pin Spec. : UA-F2012(Seoil) b. FG Spec. : 2.5×4 3. Cable Spec. : 4C×2.5SQ, LAPP Cable(P/N : 00257011) <table><tr><th>Item</th><th>Lead Wire Signal</th><th>Pin NO.</th><th>Line color</th></tr><tr><td rowspan="4">Motor</td><td>U</td><td>1</td><td>Red</td></tr><tr><td>V</td><td>2</td><td>White</td></tr><tr><td>W</td><td>3</td><td>Black</td></tr><tr><td>Ground</td><td>4</td><td>Green</td></tr></table>	Item	Lead Wire Signal	Pin NO.	Line color	Motor	U	1	Red	V	2	White	W	3	Black	Ground	4	Green
				Item	Lead Wire Signal	Pin NO.	Line color															
Motor	U	1	Red																			
	V	2	White																			
	W	3	Black																			
	Ground	4	Green																			

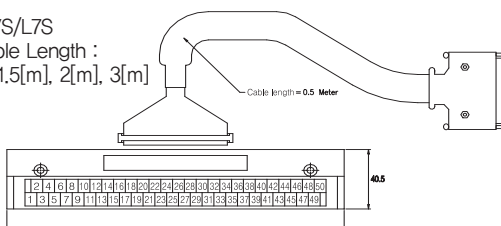
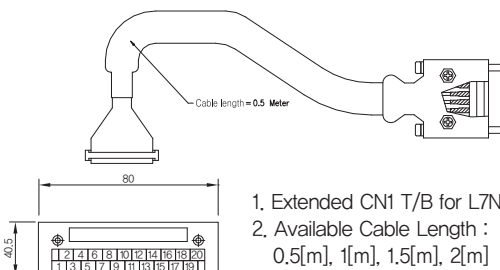
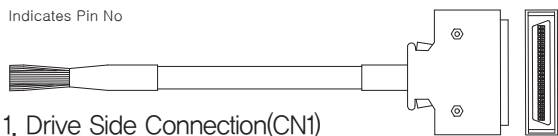
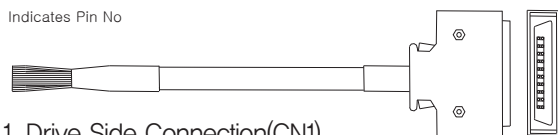
Note1) □□□ of Model Name indicates the kind and length of cable. And the declaration is as below.

Note2) In Case of DD Motor, we don't supply power cable for robotic cable.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	F03	F05	F10	F20
General Cable(N)	N03	N05	N10	N20

Servo Drive Option

Signal Cable

Type	Product type	Model Name (Note1)	Applicable Motor	Specifications
T/B	CN1 T/B	APC-VSCN1T -□□	L7S□□□□B L7PA□□□□U	1. Extended CN1 T/B for VS/L7S 2. Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m], 3[m] 
	CN1 T/B	APCS-L7NCN1T -□□	L7NA□□□□B L7NH□□□□□U	1. Extended CN1 T/B for L7N 2. Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m] 
For Signal	CN1 Cable	APC-CN1□□□A	L7S SERIES L7P SERIES	[Upper Controller] [Drive Connection Side CN1] Indicates Pin No  1. Drive Side Connection(CN1) a. Case Spec. : 10350-52A0-008(3M) b. Connector Spec. : 10150-3000VE(3M) c. Cable Spec. : 20276-SB 25P(AWG28)
For Signal	CN1 Cabl	APCS-CN1□□□A	L7N SERIES L7NH SERIES	[Upper Controller] [Drive Connection Side CN1] Indicates Pin No  1. Drive Side Connection(CN1) a. Case Spec. : 10320-52A0-008(3M) b. Connector Spec. : 10120-3000VE(3M) c. Cable Spec. : ROW-SB0.1C×20C(AWG28)

Note1) □□ of Model Name indicates the kind and length of cable And the designation is as below. CN1 cable : 1m, 2m, 3m and 5m are available.

Cable Length(m)	3	5	10	20
Robotic Cable(F)	N03	N05	N10	N20
General Cable(N)	F03	F05	F10	F20

* APC-VSCN1T

Cable Length(m)	0.5	1	1.5	2	3
Declaration	None	01	015	02	03

* APCS-L7NCN1T

Cable Length(m)	0.5	1	1.5	2	3
Declaration	None	01	015	02	03

L7 SERIES SYSTEM

Servo Drive Option

L7 Pin Map

L7S

NO	PIN Function	NO	PIN Function	NO	PIN Function	NO	PIN Function	NO	PIN Function
1	TRQCOM	11	PR+	21	SPD3	31	/BO	41	RDY
2		12	PR-	22	SPD2	32	AO	42	
3		13		23	SPD1	33	/AO	43	ZSPD
4	ZO	14	ALO2	24	GND24	34	+12VA	44	BRAKE
5	/ZO	15	ALO1	25	GND24	35	-12VA	45	INPOS
6		16	AL00	26		36	SG	46	DIR
7		17	ALMRST	27	SPDCOM	37	GND	47	SVON
8	GND	18	EMG	28	MINIY1	38	ALARM+	48	STOP
9	PF+	19	CWLIM	29	MINIY2	39	ALARM-	49	PULCOM
10	PF-	20	CCWLIM	30	BO	40	RDY+	50	+24V IN

L7P

NO	PIN Function	NO	PIN Function	NO	PIN Function	NO	PIN Function	NO	PIN Function
1	AO	11	+24V IN	21	+24V IN	31	PF+	41	INPOS1+
2	/AO	12	SVON	22	HOME	32	PF-	42	INPOS1-
3	BO	13	POT	23	H-START	33	PR+	43	ORG+
4	/BO	14	NOT	24	ISEL0	34	PR-	44	ORG-
5	ZO	15	A-RST	25	ISEL1	35	ALARM+	45	EOS+
6	/ZO	16	START	26	ISEL2	36	ALARM-	46	EOS-
7	A-TLMT	17	STOP	27	ISEL3	37	RDY+	47	TGON+
8	AGND	18	REGT	28	ISEL4	38	RDY-	48	TGON-
9	A-OVR	19	EMG	29	ISEL5	39	BRAKE+	49	TLMT+
10	AGND	20		30	PULCOM	40	BRAKE-	50	TLMT-

L7N

NO	PIN Function	NO	PIN Function
1	BREAK+	11	HOME
2	BREAK-	12	ALMRST
3	ALARM+	13	PCON
4	ALARM-	14	GAIN2
5		15	
6	+24V IN	16	
7	N-OT	17	READY+
8	P-OT	18	READY-
9	PROBE1	19	ZSPD+
10	PROBE2	20	ZSPD-

L7NH

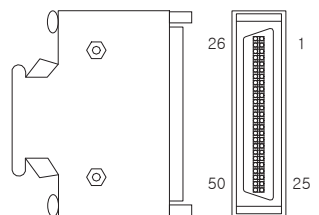
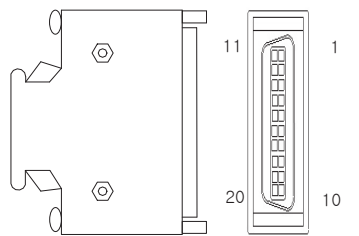
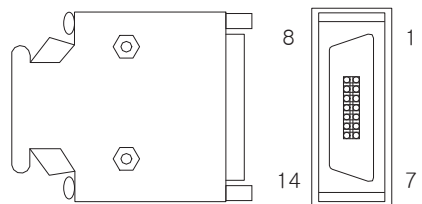
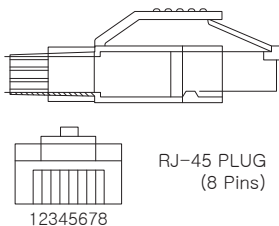
NO	PIN Function	NO	PIN Function
1	BREAK+	11	POT
2	BREAK-	12	NOT
3	RDY+	13	PCON
4	RDY-	14	GAIN2
5	AGND	15	A-TLMT
6	+24V IN	16	
7	HOME	17	RDY+
8	STOP	18	RDY-
9	PCL	19	ZSPD+
10	NCL	20	ZSPD-

Signal Cable / Connector

Type	Product type	Model Name (Note1)	Applicable Motor	Specifications
For Signal	Communication Cable	APC-CN5L7U	All Models of L7 SERIES	[PC - USB Port] [Servo Drive - CN5]  1. PC Side Connector : USB A Plug 2. Drive Side Connector(CN5) : Mini USB 5P Plug 3. Electric Requirements Spec : Double Shielded, Twisted Pair, EMI-filter attached type (Ex. : KU-AMB518, SANWA) 4. Only 1.8m length of cable is available to use

Servo Drive Option

Connector

Type	Product Type	Model Name ^(Note1)	Applicable Drive	Specifications																														
CN	CN1 Connector	APC-CN1NNA	L7S□□□B L7PA□□□□U	1. Case Spec. : 10350-52A0-008(3M) 2. Connector Spec. : 10150-3000VE(3M) 																														
CN	CN1 Connector	APC-CN2NNA	L7NA□□□B L7NH□□□□U	1. Case Spec. : 10320-52A0-008(3M) 2. Connector Spec. : 10120-3000VE(3M) 																														
CN	CN2 Connector	APC-CN3NNA	All Models of L7 SERIES	1. Case Spec. : 10314-52A0-008(3M) 2. Connector Spec. : 10114-3000VE(3M) 																														
CN	CN3 CN4 EtherCAT Connector	APCS-CN4NNA	L7NA□□□B L7NH□□□□U	 RJ-45 PLUG (8 Pins) 12345678 <table border="1"><thead><tr><th>PIN No.</th><th>Signal</th><th>Color</th></tr></thead><tbody><tr><td>1</td><td>TX/RX0 Plus</td><td>White/Orange</td></tr><tr><td>2</td><td>TX/RX0 Minus</td><td>Orange</td></tr><tr><td>3</td><td>TX/RX1 Plus</td><td>White/Orange</td></tr><tr><td>4</td><td>TX/RX2 Plus</td><td>Blue</td></tr><tr><td>5</td><td>TX/RX2 Minus</td><td>White/Blue</td></tr><tr><td>6</td><td>TX/RX1 Minus</td><td>Green</td></tr><tr><td>7</td><td>TX/RX3 Plus</td><td>White/Brown</td></tr><tr><td>8</td><td>TX/RX3 Minus</td><td>Brown</td></tr><tr><td colspan="2">Plate</td><td>SHILDE</td></tr></tbody></table> Note) EtherCAT use only 4wires(1, 2, 3, 6)	PIN No.	Signal	Color	1	TX/RX0 Plus	White/Orange	2	TX/RX0 Minus	Orange	3	TX/RX1 Plus	White/Orange	4	TX/RX2 Plus	Blue	5	TX/RX2 Minus	White/Blue	6	TX/RX1 Minus	Green	7	TX/RX3 Plus	White/Brown	8	TX/RX3 Minus	Brown	Plate		SHILDE
PIN No.	Signal	Color																																
1	TX/RX0 Plus	White/Orange																																
2	TX/RX0 Minus	Orange																																
3	TX/RX1 Plus	White/Orange																																
4	TX/RX2 Plus	Blue																																
5	TX/RX2 Minus	White/Blue																																
6	TX/RX1 Minus	Green																																
7	TX/RX3 Plus	White/Brown																																
8	TX/RX3 Minus	Brown																																
Plate		SHILDE																																
CN	STO Cable	APCS-STO□□A	L7NA□□□B L7NH□□□□U	 <table border="1"><thead><tr><th>PIN No.</th><th>IO Signal</th><th>Color</th></tr></thead><tbody><tr><td>1</td><td>NC</td><td>—</td></tr><tr><td>2</td><td>NC</td><td>—</td></tr><tr><td>3</td><td>HWB1 Minus</td><td>Orange</td></tr><tr><td>4</td><td>HWB1 Plus</td><td>Orange</td></tr><tr><td>5</td><td>HWB2 Minus</td><td>Yellow</td></tr><tr><td>6</td><td>HWB2 Plus</td><td>Yellow</td></tr><tr><td>7</td><td>EDM Plus</td><td>White</td></tr><tr><td>8</td><td>EDM Minus</td><td>White</td></tr></tbody></table> 1. Cable Length : Only 0.3[m], 1[m], 3[m] of Cable is available to use. 2. Connector Model Name : APCS-STO00A * Caution : During assembly of connector, It can be broken easily without guaranty of LS Mecapion.	PIN No.	IO Signal	Color	1	NC	—	2	NC	—	3	HWB1 Minus	Orange	4	HWB1 Plus	Orange	5	HWB2 Minus	Yellow	6	HWB2 Plus	Yellow	7	EDM Plus	White	8	EDM Minus	White			
PIN No.	IO Signal	Color																																
1	NC	—																																
2	NC	—																																
3	HWB1 Minus	Orange																																
4	HWB1 Plus	Orange																																
5	HWB2 Minus	Yellow																																
6	HWB2 Plus	Yellow																																
7	EDM Plus	White																																
8	EDM Minus	White																																

Note1) □□ of Model Name indicates the kind and length of cable. And the declaration is as below.

*APCS-STO□□A

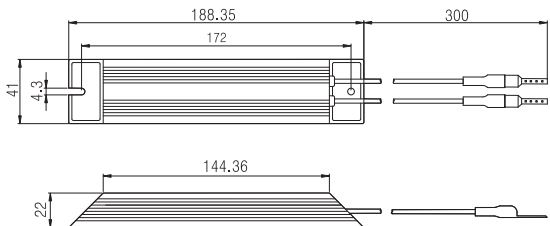
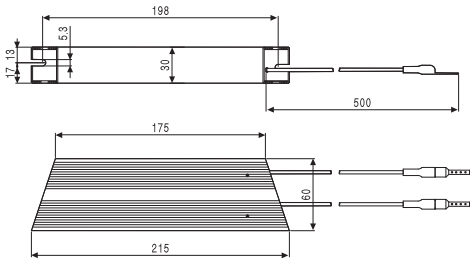
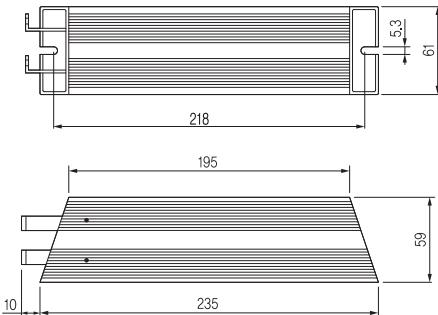
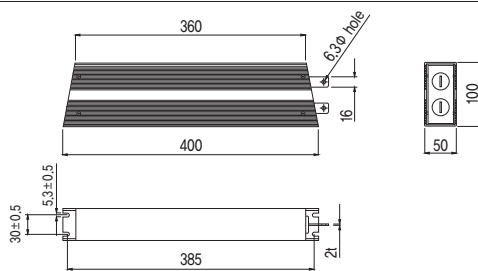
Cable Length(m)	0.3	1	3
Declaration	03	10	30

L7 SERIES SYSTEM

Other Options

200V Braking Resistor

* Option braking resistors are selectable items for user's need.

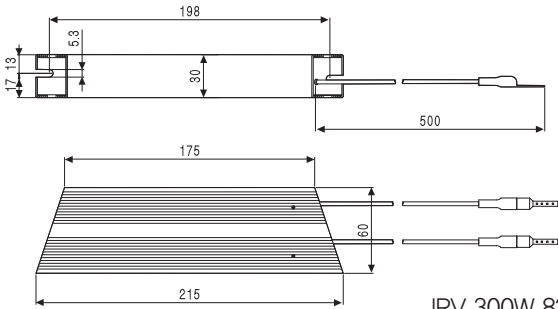
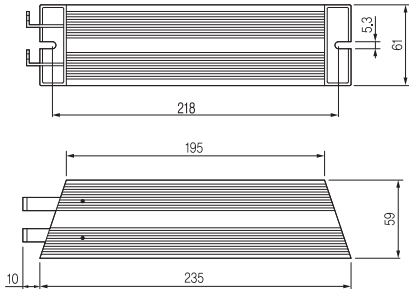
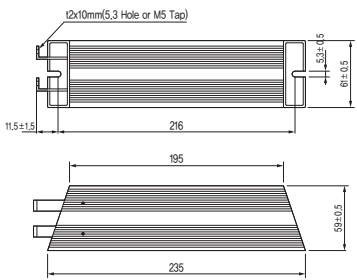
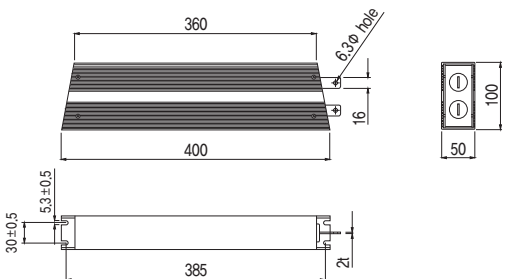
Type	Product Type	Model Name ^(Note1)	Applicable Drive	Specifications
Resistor	Braking Resistor	APCS-140R50 50Ω/140W	L7□A001□ L7□A002□ L7□A004□	 IRH 140W 50ohm
Resistor	Braking Resistor	APCS-300R30 30Ω/300W	L7□A008□ L7□A010□	 IRV 300W 30ohm
Resistor	Braking Resistor	APC-600R30 15Ω/1200W (30Ω/600*2P)	L7□A020□	 IRV 600S 30ohm IRV 600S 28ohm * L7□A020□ – 2pcs * L7□A050□ – 4pcs (Parallel Connection) L7□A075□ L7□A035□ – 3pcs (Parallel Connection) Note) IRV 600S 30ohm and 600S 28ohm have the same external dimensions.
		APC-600R30 10Ω/1800W (30Ω/600*3P)	L7□A035□	
		APC-600R28 7Ω/2400W (28Ω/600*4P)	L7□A050□ L7□A075□	
Resistor	Braking Resistor	APCS-2000R3.3 3.3Ω/2000W	L7□A150□	 IRM2000-3.3Ω

Note1) L7 Series 100W~7.5kW has the internal basic braking resistor. If the machine requires short deceleration time frequently, refer to table above and apply the appropriate braking resistor.

Other Options

400V Braking Resistor

* Option braking resistors are selectable items for user's need.

Type	Product Type	Model Name (Note1)	Applicable Drive	Specifications
Resistor	Braking Resistor	APCS-300R82 82Ω/300W	L7□B010□	 IRV 300W 82ohm
Resistor	Braking Resistor	APCS-600R140 70Ω/1200W (140Ω/600W*2P)	L7□B020□ L7□B035□	 IRV 600W 140ohm
Resistor	Braking Resistor	APCS-600R75 25Ω/1800W (75Ω/600W*3P)	L7□B050□ L7□B075□	 IRV 600W 75ohm (3PCS Parallel connection)
Resistor	Braking Resistor	APCS-2000R13.4 13.4Ω/2000W	L7□B150□	 IRM 2000W 13.4ohm

Note1) L7 Series 100W~7.5kW has the internal basic braking resistor. If the machine requires short deceleration time frequently, refer to table above and apply the appropriate braking resistor.

L7 SERIES SYSTEM

Servo Drive Option

Noise Filter

Type	Product Type	Model Name	Applicable Drive	Specifications
Resistor	Noise Filter	APCS-TB6-B010LBEI	L7□A 001□ L7□A 002□ L7□A 004□ L7□A 008□ L7□A 010□ L7□B 010□	
		APCS-TB6-B020NBDC	L7□B 020□ L7□B 035□	
		APCS-TB6-B030NBDC	L7□A 020□ L7□A 035□ L7□B 050□	
		APCS-TB6-B040AS	L7□A 050□ L7□B 075□	
Resistor	Noise Filter	APCS-TB6-B060LAS	L7□B 150□	

Contents

■ Integrated Servo System

PEGASUS Series

Integrated Servo System (EtherCAT)

- Servo Drive Designation _116
- Product Feature _117
- External Dimensions _120



L7S Series

L7N Series

L7NH Series

L7P Series

S Series

F Series

MDM Series

Options

PEGASUS Series

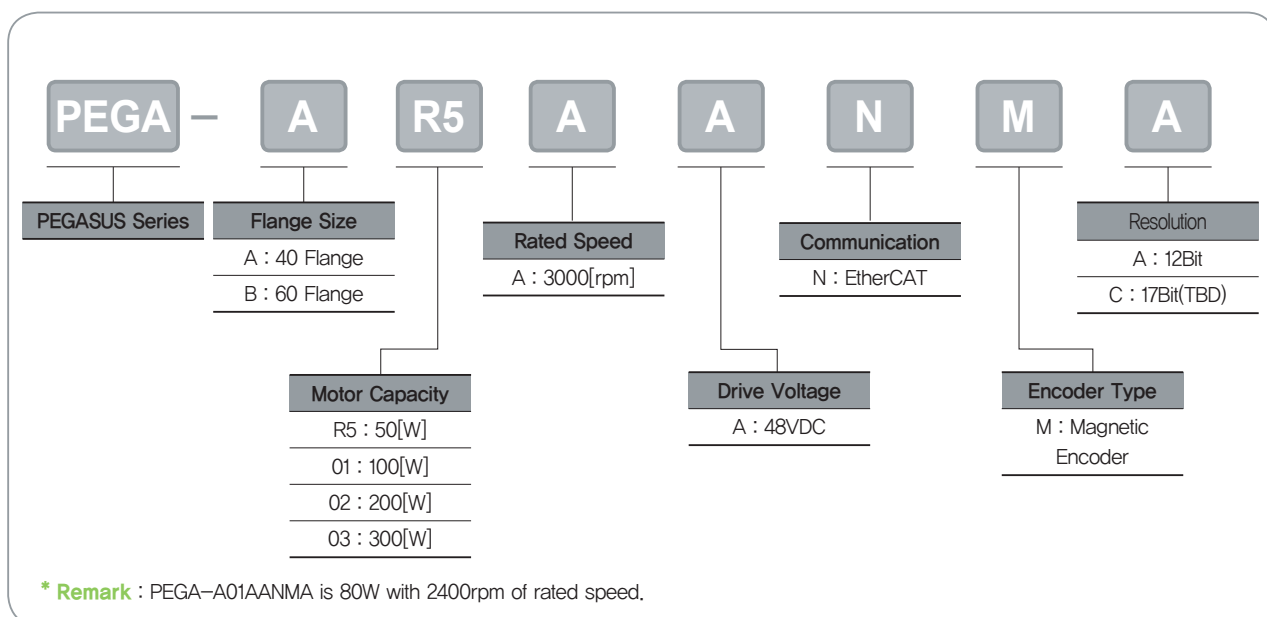
L7 SERIES SYSTEM

Integrated Servo System (EtherCAT)

PEGASUS Series



Servo Drive Designation



PEGASUS Series

Characteristic

● Enhanced efficiency integrated servo system

- Cost effective from installation by integrated system of motor, encoder cable and drive
- Maximization for useful space when installed at limited and small space
- High effectiveness for application of multi axis because there is no limitation for space of installation

● Real-time control through EtherCAT

- High speed, Real-time capability and Synchronization mechanism
- Improved EtherCAT communication speed
- Supporting CoE, EoE and FoE

Identifying the Part of PEGASUS Series



① Input / Output Signal Connector (CN1)

- This Connector is for Sequence Input / Output Signals

② EtherCAT Communication Output Port (OUT)

③ Status LED

- It Indicates the current state of Ether CAT Communication

④ Power Connector (CN3)

⑤ USB Connector (CN5, Mini B type)

- This Connector is to Communicate With a PC

⑥ Node Address Setting Switch

- This Switch is to set the node address of the drive
You can set the node addresses from 0 to 15

⑦ EtherCAT Communication Input Port (IN)

⑧ Safety Connector (CN2)

- This Connector connects Safety Devices

L7 SERIES SYSTEM

Specifications of PEGASUS Series

Rated Values of Servo Drive

Rated values for servo drive	□40 50W	□40 100W	□60 100W	□60 200W	□60 300W
Continuous output current [Arms]	1.77	2.38	3.62	5	6.8
Maximum output current [Arms]	3.54	3.57	7.24	10	13.6
Input voltage	DC 48V ~ DC 60V				

Basic Specifications

Category		Details
Use conditions	Control method	PWM controlled sine wave current driving method
	Operating temperature / storage temperature	0~+40[°C] / -20~ +60[°C]
	Operating humidity / storage humidity	Below 80% RH / Below 90% RH (no freeze or condensation)
	Vibration-/impact-resistance	TBD
	Degree of protection / degree of pollution	TBD
	Altitude	1000 m or lower
	Other	To be free from electrostatic noise, strong electrolysis, or radiation.
Performance	Speed variation	Load variation At 0 to 100% load: $\pm 3\%$ (at rated speed)
		Voltage variation Rated voltage $\pm 10\%$: 0% (at rated speed)
		Temperature variation 25°C: $\pm 0.1\%$ or less (at rated speed)
Input/output signal	Input signal	Input voltage range: DC 12 V – DC 30 V The 4-channel input signal can be assigned to 12 functions: POT, NOT, HOME, STOP, PCON, GAIN2, PCL, NCL, PROBE1, PROB2, EMG, and ARST.
	Output signal	Rated voltage and current: DC 24 V $\pm 10\%$, 120 [mA] The 2-channel output signal can be assigned to 11 functions: BRAKE, ALARM, RDY, ZSPD, INPOS1, TLMT, VLMT, INSPD, WARN, TGON, and INPOS2.
Analog Monitor		Number of channels: 1 Output voltage range: $\pm 4V$ Angular resolution: 12 bits Stabilization time: 15 μs
USB communication	Connecting device	PC or USB storage medium
	Communication standard	Conform to the USB 2.0 Full Speed Standard.
	Function	Firmware download, parameter setting, adjustment, auxiliary functions, and parameter copy function.
Dynamic brake (three-phase short-circuit)		Activates when servo alarm, servo OFF, or Emergency stop (POT, NOT and EMG) is input.
Protection functions		Overcurrent, overload, current limit, overheat, overvoltage, undervoltage, overspeed, encoder error, position follow error, etc.
Auxiliary functions		Gain adjustment, alarm history, JOG drive, programmed JOG drive, etc.
Safety functions	Input	STO1 and STO2
	Compatible standard	TBD

Specifications of PEGASUS Series

EtherCAT Communication Specification

Category		Details
Communication standard	FoE	Firmware download
	EoE	Parameter setting, adjustment, auxiliary functions, and parameter copy through UDP.
	CoE	IEC 61158 Type12, IEC 61800-7 C/A 402 drive profile
Physical layer		100BASE-TX (IEEE802.3)
Connector		RJ45 x 2
Distance		Within 100 m between nodes
DC (Distributed Clock)		Sync by DC mode
LED Display		L/A0(Link/Act IN) L/A1(Link/Act OUT) RUN ERR
Cia402 drive Profile		Supports CSP, CSV, CST, PP, PV, PT, and HM Modes.

Motor Specification

Model	Unit	SAR5A-8	SA01A-8	SB01A-6	SB02A-9	SB03A-9
Frame Size	[mm]	40	40	60	60	60
Rated Power	[W]	50	80	100	200	300
Rated Torque	[N m]	0.16	0.32	0.32	0.64	0.95
	[Kg cm]	1.62	3.25	3.25	6.5	9.74
Rated Speed	[rpm]	3,000	2,400	3,000	3,000	3,000
Inertia	[gf cm s ²]	0.02	0.0435	0.114	0.186	0.328
	[Kg m ² x 10 ⁻⁴]	0.02	0.0426	0.116	0.182	0.321
Rated Voltage	[Vdc]	Input Power : 48VDC				
Encoder Type	—	Magnetic Encoder (12bit)				

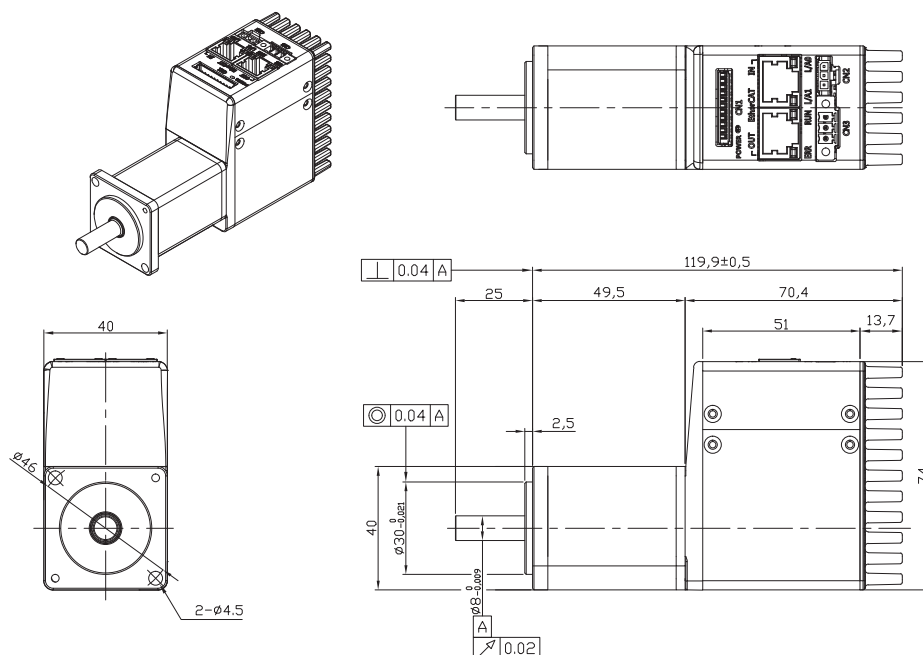
Note1) SA01A-8 can be operated at 3000rpm(100w) with 60Vdc of input power(instead of 48Vdc)

L7 SERIES SYSTEM

External Dimensions of PEGASUS Series

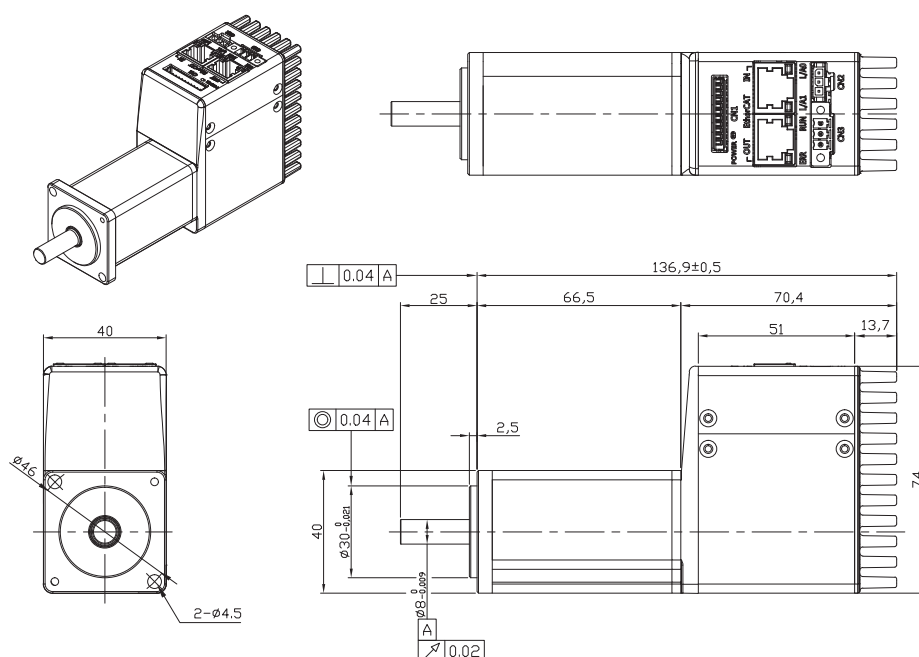
■ PEGA-AR5A

*Unit [mm]



■ PEGA-A01A

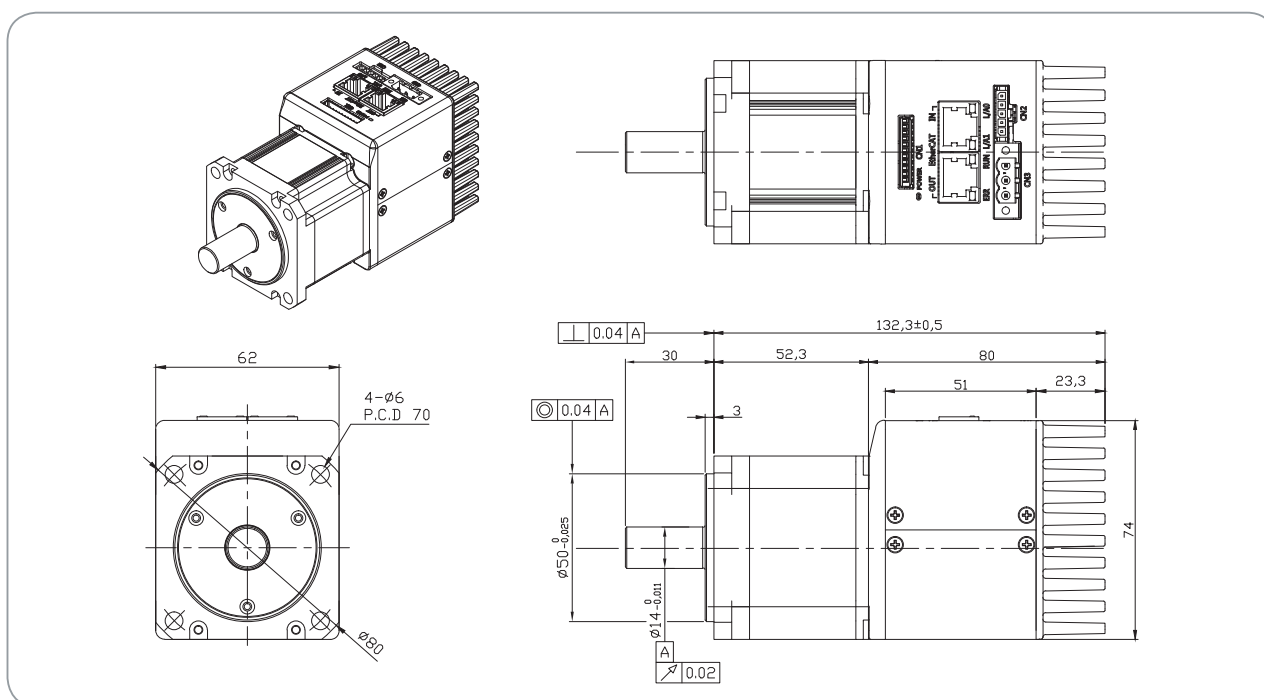
*Unit [mm]



External Dimensions of PEGASUS Series

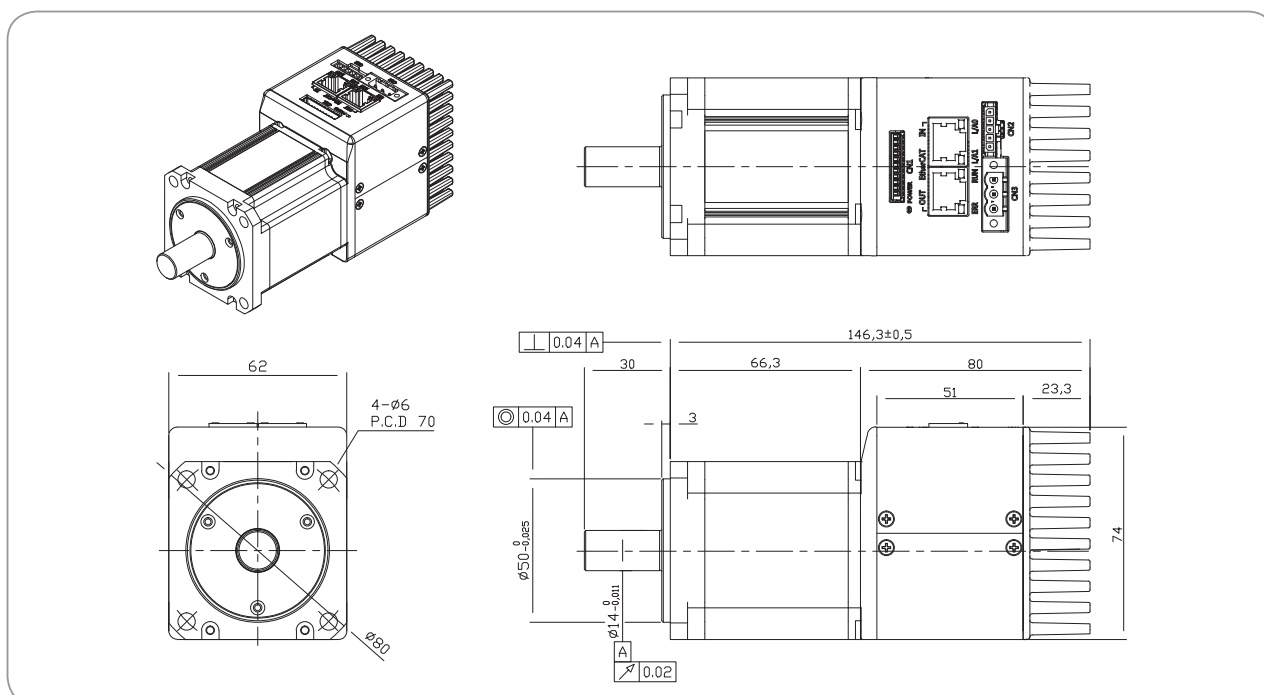
PEGA-B01A

*Unit [mm]



PEGA-B02A

*Unit [mm]

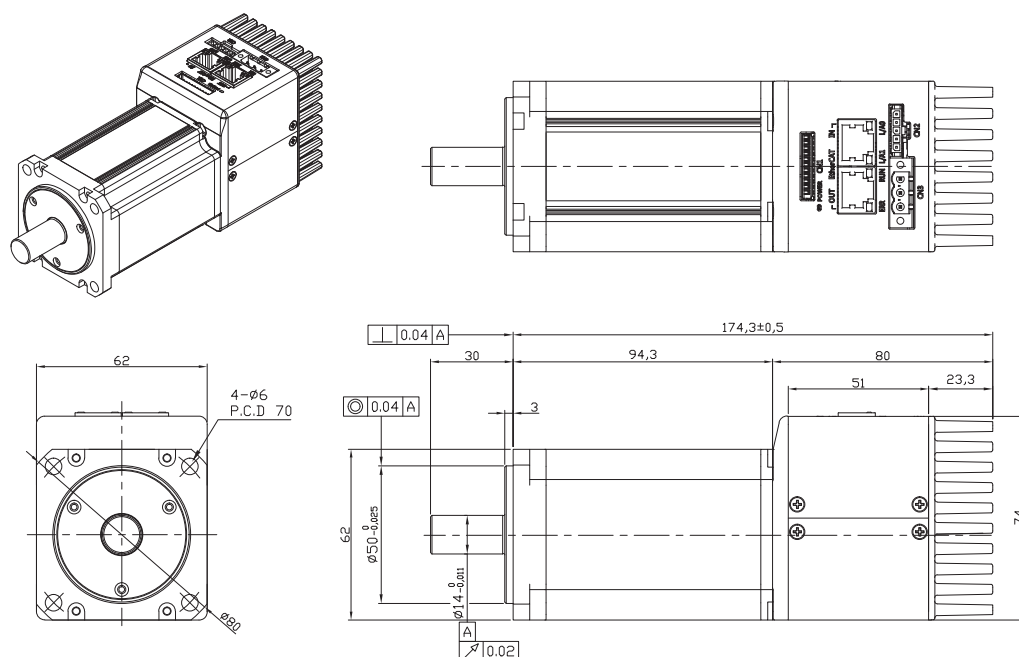


L7 SERIES SYSTEM

External Dimensions of PEGASUS Series

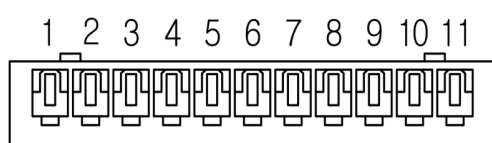
■ PEGA-B03A

* Unit [mm]



■ Accessory Kit

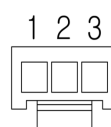
CN1 : I/O Connector



51004-1100 (MOLEX)

Pin Number	Direction	Name	Signals	Descriptions
1	VCC	+24V	+24V INPUT	+24V Vcc Input
2	Input	POT	Positive Over-Travel	Limit Sensor Input
3	Input	NOT	Negative Over-Travel	
4	Input	HOME	Home Sensor	Home Sensor Input for Homing
5	Input	STOP	Stop Input	Stop Command Input
6	Output	BRAKE+	BRAKE	Output Brake Control Signal
7	Output	BRAKE-		
8	Output	ALARM+	Alarm Output	Servo Alarm Output
9	Output	ALARM-		
10	Output	MONITOR1	Analog Monitor	Analog Monitor Output(0V~5V)
11	GND	AGND	AGND(0V)	Analog Signal Graound

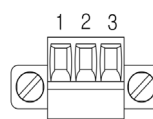
CN2 : Safe Torque Off Connector



43645-3 (MOLEX)

Pin Number	Name	Descriptions
1	HWBB1	Safe Torque Off(STO) input signals
2	HWBB2	
3	COMMON	DC 24V GND

CN3 : Power Connector



MC_1.5-3-STF-3.5
(PHOENIX CONTACT)

Pin Number	Name	Descriptions
1	FG	Frame Ground
2	N(DC 0V)	DC 0V GND
3	VCC(DC 48V)	DC 48V input

MEMO

LS Mecapion

MEMO

LS Mecapion

MEMO

LS Mecapion

MEMO

LS Mecapion

MEMO

LS Mecapion

MEMO

LS Mecapion