L7 Drive

LS Mecapion's L7 Series

will be the best partner for your future vision.

Your reasonable selection for Total Solution

Moving towards tomorrow

The World Class Leader in Automation System

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Characteristics of L7 Series

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

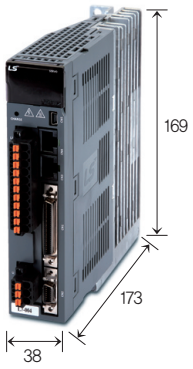
Compared with VS Drive — Max 52% Slim

Compared with competitor's drive — Max 5% Slim

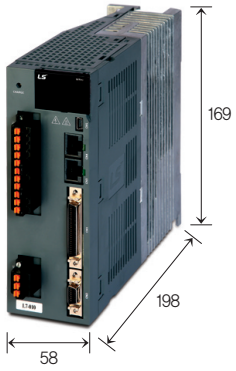
The Minimized Width to 38mm!!! (400W)

– Downsize Machine with Compact and Slim Design

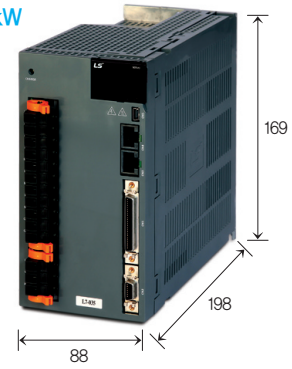
■ 400W



■ 1kW



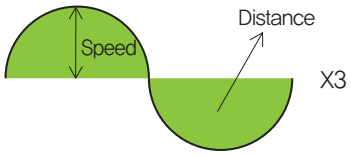
■ 3.5kW



Easy to USE

● Easy Gain Tuning with Automatic Inertia Estimating Function

- Quick & Accurate Inertia Estimating
- Off-Line Tuning
- Parameter for Estimation(Speed & Distance)



● Encoder with Bi-Directinal High Speed Serial Communication

- Automatic Identification(Motor ID / Encoder Pulse)
- BiSS protocol
- Easy Wiring(15 Encoder wires → 7 Encoder wires) and Anti-External Noise

BiSS INTERFACE

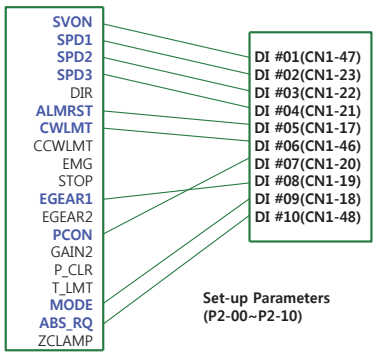
Characteristics of L7 Series

● Easy Setting with Built-in Pannel Operator

- 4 Built-in Operation Key(UP, DOWN, MODE/LEFT, SET/RIGHT)
- Eidetic & Convenient Parameter and Menu Editing
  : According to Key State and Parameter type, Easy Editing
- Parameter consists of Status Monitoring(St), Parameter Setting(P0~P4), Function(Cn)
- Monitoring Function for Many States and Variables
  : Present Operating State(St-00), Input Frequency(St-06), Accumulated Over Load Factor(St-09), Regenerative Over Load Factor(St-13), Data in one revolution(St-17), Drive Internal Temperature(St-19)
- Grouping of Parameter(P0-XX~P4-XX)
  : P0(System Configuration), P1(Control), P2(Input/Output), P3(Speed Mode), P4(Position Mode)
- Various Functions and Adjusting(Cn-XX)
  : Automatic Gain Estimating Function(Cn-05), Analog Input Adjusting(Cn-10~13), Manual JOG Operation(Cn-00), Forced Input/Output Function(Cn-07, Cn-08)

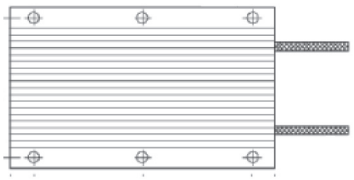
● Many I/O Contacts and Various Functions

- Digital Input(10 contacts, 19 functions)
  : SV_ON, SPD1/2/3, DIR, A_RST, CWLMT, CCWLMT, EMERGENCY, STOP, EGEAR1/2, PCON, GAIN2, P_CLR, T_LMT, MODE, ABS_RQ, ZCLAMP
- Digital Output : 5 Contacts + Alarm Code(3 contacts, 9 functions)
  : ALARM, RDY, ZSPD, BRAKE, INPOS, INSPD, T_LMT, V_LMT, WARN
- Versatile I/O Assignment by Parameter Including contact level(A/B) setting
- Forced I/O Function for Easy I/O Setting
- Analog Input Contacts : 2 contacts(Speed, Torque)
- Analog Monitoring Output : 2 contacts(12Bit)



● Regeneration Brake Resistor

- Built-in Drive for User's Convenience(100W-3.5kW)
- Connection of External Installation(Optional) Available
- The adoption of reinforced protect algorithm



● Plug-in Type Power Connector

- Easy Wiring(Up to 3.5kW Model)

● 400V(High Voltage) Servo

- Convenient Wiring by Using Same Voltage for Main Power and Control Power
- Power Input : 3Phase 380 ~ 480Vac
- Main Input : 1Phase 380 ~ 480Vac

Characteristics of L7 Series

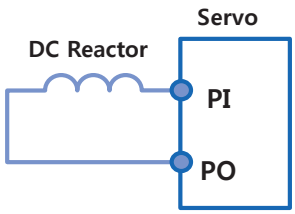
Reliability

● Increased Durability of Main Capacitor

- Long Life Type Capacitor(2.5 times longer than previous one)

● Convenient DC Reactor

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



● Safe"Off" Function with Detecting Control Power "Off"

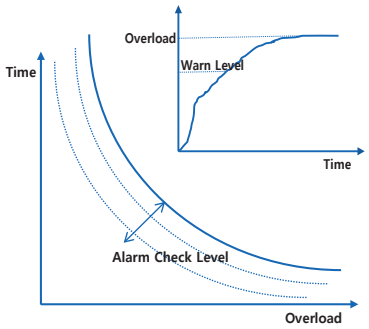
● CE, RoHS Certificated(Planed : 2012. 2Q)

● Upgraded Protection Function(I)

- Triple Protection Functions for Power Module
  : IPM Fault, CL Detecting, Over Current Detecting with S/W
- Main Power Mis-wiring Detecting Function
  : Selecting 3 Phase or Single Phase, and Alarm or Warn is available
- Protecting Overheating with Thermal Sensor in the Drive and Motor
- Alarm Code Grouping and Exclusive Output Contacts(AL00, AL01, AL02)
- Warn Function(Digital Output WARN Output is Available)
  : Mis-wiring of Power, Low voltage for Encoder Battery, Over Speed Command, Over Torque Command, Over Load, Mis-matched motor and drive

● Upgrade Protection Function(II)

- Detecting Function for Accumulated Over Load of Regenerative Resistor
  : Protect algorithm is provided with embedded resistor characteristic
  : Protection by Capacity(P0-11) and Resistance(P0-10)
  : Providing Derating Factor for radiant heat
- Available Continuous Overload Capacity Setting as followed Operating Condition
  : Protections with Capacity of I2T(Protect with separated Overload table at Stall & Operation)
  : Set Overload check level(P0-12)
  : Setting Warn signal output Level is available(P0-13)



Characteristics of L7 Series

High Performance

● High Resolution Serial type Encoder(16bit, 19bit, 21bit)

- Accurate Position Control and Improved Stability at Low Speed

● Stable Low Speed Operation with Accurate Speed Check

- Stable Measurement at Low Speed

● Absolute Encoder(Multi-turn)

- Origin Function is not needed

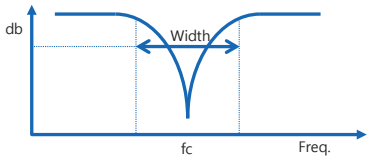
● Improved Speed Response Frequency

- About 1kHz
- Reduced Positioning Time

Intelligent Control

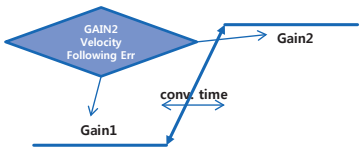
● Notch Filter for Resonance Control

- Available Setting Frequency(P1-18) and Width(P1-19)



● Various Gain Switching Mode for Improved Control Functions

- Auto Switching Function for P/PI can reduce overshooting at Accel/Decel time
  : Switching by Torque, Speed and Accel/Decel command, Position Error is available
- Various Gain1 ↔ Gain2 Switching Mode is provided
  : Switching as followed Input Gain2, ZSPD, INPOS condition
- Smooth Gain Switching with Setting Switching Time(P1-16)

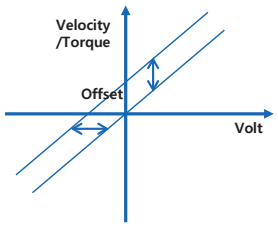


● Various Dynamic Brake Control Mode

- Setting Mode [at Stop] or [after Stop]
  : Hold after DB STOP, Release after DB STOP, Hold after Free-run, Release after Free-run

● Improved Adjusting Function for Analog Input

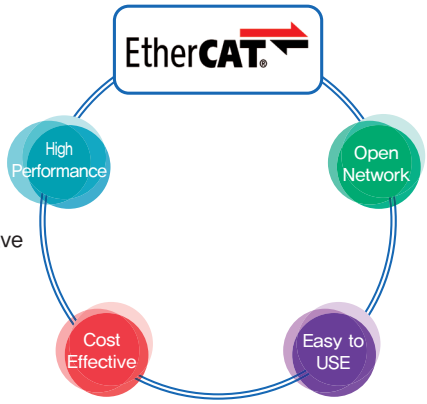
- Auto Adjusting for Speed Command(Cn-10)
- Auto Adjusting for Torque Command(Cn-11)
- Manual Adjusting for Speed Command(Cn-12)
- Manual Adjusting for Torque Command(Cn-13)



● Providing Trapezoid & S-Curve type Accel/Decel Pattern

Characteristics of L7 Series

Motion Network Type(EtherCAT) – L7N Series



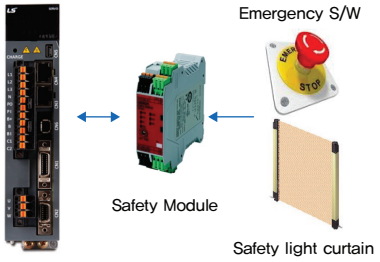
● High Performance
- High speed, Real-time capability and Synchronization mechanism

● Open Network
- Global open protocol(〉1600 world wide members)

● Cost Effective
- Standard Ethernet Cabling+Connectors, Less implementation efforts for master and slave

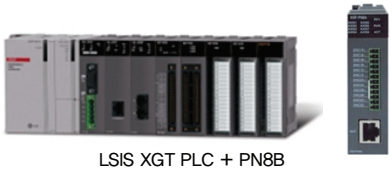
● Easy to Use
- Versatile topology, Diagnostics

● L7 Drive with Built-in EtherCAT Interface
- 100BASE-TX(100Mbps) ethernet based real-time communication
- Support CiA402(IEC61800-7) drive profile • Interoperability
- Max. 100m between nodes • Have a precise synchronization mechanism(〈1us)
- Freely settable process data length and mapping
- Four status indication LEDs(L/A0, L/A1, RUN, ERR)
- Standard RJ45 connector and cabling(CAT5)
- Have intrinsic functions of L7S series(same size) • Support various homing modes
- Support full-closed control(2012' 4Q planned)



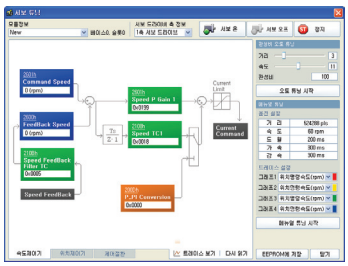
● Support various operation modes
- CSP, CSV, CST, PP, PV, PT, HM, IP

● Safe Torque Off function
- Forced torque off by HWBB signals without intervention of μP and FPGA(ASIC), International standard(IEC61508))


LSIS XGT PLC + PN8B

● Versatile I/O assignment by parameters
- 6 inputs, 4 outputs

● High speed position capture function
- Touch probe function(PROBE1, PROBE2)

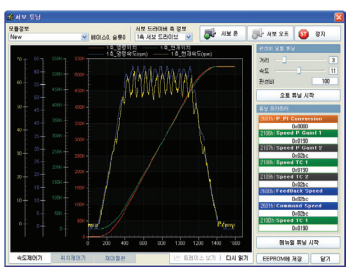


● Provide specialized commissioning tools by LSIS's XGT PLC
- Tune inertia ratio, velocity/position gains, gain conversion configuration

● Have conformity of EtherCAT device
- In-house test using CTT(Conformance Test Tool)

● Support scaling objects for position, velocity and acceleration
- Numerator and denominator

● Provide Gain Tuning Tools and Commissioning Packages
- Automatic inertia tuning and PI gains • Gain conversion setting
- Manual fine gain tuning tool • Object save and initialization function
- Alarm history function(recently issued 20 alarm codes)



LS Mecapion

L7 Servo Drive & Motor

Servo Motor & Drive Designations

Servo Drive Designation

L7	S	A	004	B	AA
Series	**Communication**	**Input Power Supply**	**Capacity**	**Encoder Type**	**Option**
L7 Series	S : Standard I/O Type	A : 220VAC	001 : 100W	A : Parallel (Pulse Type)	Exclusive Option Code
	N : Network Type	B : 400VAC	002 : 200W	B : Serial (Communication Type)	
			004 : 400W		
			008 : 750W		
			010 : 1.0kW		
			020 : 2.0kW		
			035 : 3.5kW		
			050 : 5.0kW		
			075 : 7.5kW (Coming Soon)		
			110 : 11kW (Coming Soon)		
			150 : 15kW (Coming Soon)		

Servo Motor Designation

APM –	S	B	04	A	M	K	1
Servo Motor	**Motor Shaft**	**Flange Size**	**Motor Capacity**	**Rated Speed**	**Encoder Type**	**Shape of Shaft End**	**Oil Seal, Brake Type**
	S : Solid Shaft	A : 40 Flange	R3 : 30[W]	A : 3000[rpm]	A : Inc. 1024[P/R]	N : Straight	None : None
	F : Flat Type	B : 60 Flange	R5 : 50[W]	D : 2000[rpm]	B : Inc. 2000[P/R]	K : One side Round key (Standard)	1 : Oil Seal Attached
	H : Hollow Shaft	C : 80 Flange	01 : 100[W]	G : 1500[rpm]	C : Inc. 2048[P/R]	H : Hollow Shaft	2 : Brake Attached
	L : Low Current Type	E : 130 Flange	02 : 200[W]	M : 1000[rpm]	D : Inc. 2500[P/R]		3 : Oil Seal, Brake Attached
		F : 180 Flange	03 : 300[W]		E : Inc. 3000[P/R]		Note) Refer to Brake Specifications
		G : 220 Flange	04 : 400[W]		N : 19bit S-Turn Abs.		
			07 : 650[W]		M : 19bit M-Turn Abs.		
			08 : 800[W]				
			10 : 1.0[kW]				
			15 : 1.5[kW]				
			20 : 2.0[kW]				
			35 : 3.5[kW]				
			44 : 4.4[kW]				
			50 : 5.0[kW]				
			75 : 7.5[kW] (Coming Soon)				
			110 : 11kW (Coming Soon)				
			150 : 15kW (Coming Soon)				

Servo Motor & Drive Designations

Servo Motor & Drive Selection Table

● APM-F Series Selection

Rated Speed (rpm)	Max. Speed (rpm)	Flange Size	Motor (APM)	Drive	Encoder Type	IP Grade
3,000	5,000	□60	FB01A	L7□A001B	*19Bit Serial Abs	IP65
		□60	FB02A	L7□A002B		
		□60	FB04A	L7□A004B		
		□80	FC04A	L7□A004B		
		□80	FC06A	L7□A008B		
		□80	FC08A	L7□A008B		
		□80	FC10A	L7□A010B		
		□130	FE09A	L7□A010B		
		□130	FE15A	L7□A020B		
		□130	FE22A	L7□A020B		
		□130	FE30A	L7□A035B		
		□180	FF30A	L7□A035B		
		□180	FF50A	L7□A050B		
2,000	3,000	□80	FC03D	L7□A004B		
		□80	FC05D	L7□A008B		
		□80	FC06D	L7□A008B		
		□80	FC07D	L7□A008B		
		□180	FE06D	L7□A008B		
		□180	FE11D	L7□A010B		
		□180	FE16D	L7□A020B		
		□180	FE22D	L7□A020B		
		□180	FF22D	L7□A020B		
		□180	FF35D	L7□A035B		
		□180	FF55D	L7□A050B		
		□180	FF75D	L7□A075B		
		□220	FG22D	L7□A020B		
		□220	FG35D	L7□A035B		
		□220	FG55D	L7□A050B		
		□220	FG75D	L7□A075B		
1,500	3,000	□130	FE05G	L7□A008B		
		□130	FE09G	L7□A010B		
		□130	FE13G	L7□A020B		
		□130	FE17G	L7□A020B		
		□180	FF20G	L7□A020B		
		□180	FF30G	L7□A035B		
		□180	FF44G	L7□A050B		
		□180	FF60G	L7□A075B		
		□180	FF75G	L7□A075B		
		□220	FG20G	L7□A020B		
		□220	FG30G	L7□A035B		
		□220	FG44G	L7□A050B		
		□220	FG60G	L7□A075B		
1,000	2,000	□130	FE03M	L7□A004B		
		□130	FE06M	L7□A008B		
		□130	FE09M	L7□A010B		
		□130	FE12M	L7□A020B		
		□180	FF12M	L7□A020B		
		□180	FF20M	L7□A020B		
		□180	FF30M	L7□A035B		
		□180	FF44M	L7□A050B		
		□220	FG12M	L7□A020B		
		□220	FG20M	L7□A020B		
		□220	FG30M	L7□A035B		
		□220	FG44M	L7□A050B		

Note) L7□A075 Servo Drive is Coming soon.

Servo Motor & Drive Designations

Servo Motor & Drive Selection Table

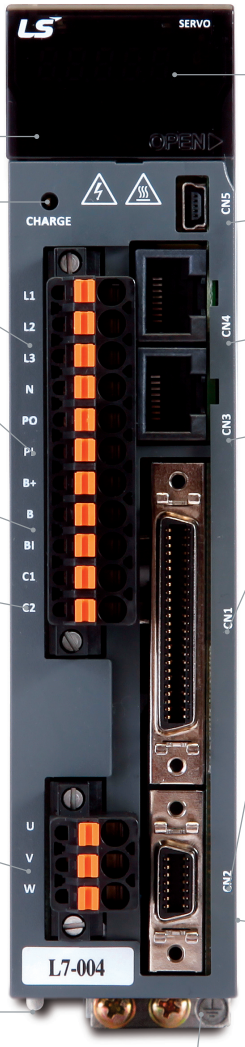
● APM-S Series Selection

Rated Speed (rpm)	Max. Speed (rpm)	Flange Size	Motor (APM)	Drive	Encoder Type		IP Grade
					Parallel Type	Serial Type	
3,000	5,000	□40	SAR3A	L7□A001□	*2,048 P/R	*18Bit Serial Abs	IP55
		□40	SAR5A	L7□A001□			
		□40	SA01A	L7□A001□			
		□40	SA015A	L7□A002□			
		□60	SB01A	L7□A002□	*3,000 P/R	*19Bit Serial Abs	IP65
		□60	SB02A	L7□A002□			
		□60	SB04A	L7□A004□			
		□80	SC04A	L7□A004□			
		□80	SC06A	L7□A008□			
		□80	SC08A	L7□A008□			
		□80	SC10A	L7□A010□			
		□130	SE09A	L7□A008□			
		□130	SE15A	L7□A020□			
		□130	SE22A	L7□A020□			
		□130	SE30A	L7□A035□			
		□180	SF30A	L7□A035□			
		□180	SF50A	L7□A050□			
2,000	3,000	□80	SC03D	L7□A004□			
		□80	SC05D	L7□A008□			
		□80	SC06D	L7□A008□			
		□80	SC07D	L7□A008□			
		□130	SE06D	L7□A008□			
		□130	SE11D	L7□A010□			
		□130	SE16D	L7□A020□			
		□130	SE22D	L7□A020□			
		□180	SF22D	L7□A020□			
		□180	LF35D	L7□A035□			
		□180	SF55D	L7□A050□			
	2,500	□180	SF75D	L7□A075□			
	3,000	□220	SG22D	L7□A020□			
		□220	LG35D	L7□A035□			
		□220	SG55D	L7□A050□			
	2,500	□220	SG75D	L7□A075□			
15,00	3,000	□130	SE05G	L7□A008□			
		□130	SE09G	L7□A010□			
		□130	SE13G	L7□A020□			
		□130	SE17G	L7□A020□			
		□180	SF20G	L7□A035□			
		□180	LF30G	L7□A035□			
		□180	SF44G	L7□A050□			
	2,500	□180	SF60G	L7□A075□			
	3,000	□220	SG20G	L7□A020□			
		□220	LG30G	L7□A035□			
		□220	SG44G	L7□A050□			
	2,500	□220	SG60G	L7□A075□			
1,000	2,000	□130	SE03M	L7□A004□			
		□130	SE06M	L7□A008□			
		□130	SE09M	L7□A010□			
		□130	SE12M	L7□A020□			
		□180	SF12M	L7□A020□			
		□180	SF20M	L7□A035□			
		□180	LF30M	L7□A035□			
		□180	SF44M	L7□A050□			
		□220	SG12M	L7□A020□			
		□220	SG20M	L7□A035□			
		□220	LG30M	L7□A035□			
		□220	SG44M	L7□A050□			
		□220	SG60M	L7□A075□			
3,000	3,500	□60	HB01A	L7□A002□	*1,024 P/R	*No application	IP55
		□60	HB02A	L7□A002□			
		□60	HB04A	L7□A004□			
		□130	HE09A	L7□A008□	*2,048 P/R		
		□130	HE15A	L7□A020□			
		□130	HE30A	L7□A035□			

Note) L7□A075 Servo Drive is Coming soon.

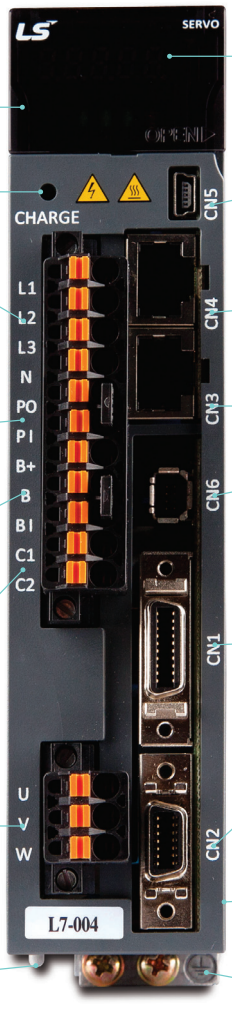
Identifying the Parts of L7

[L7S]



- Display
- Operation Key (Mode, Up, Down, Set)
- Charge Lamp
- CN5 : USB Connector
- Main Power Connector (L1, L2, L3)
- CN4 : RS-422 Communication Connector
- DC Reactor Connector(PO, P⊕) Short-Circuit when not used
- CN3 : RS-422 Communication Connector
- Regenerative Resistor Connector(B+, B, BI)
  - Short-Circuit B, BI terminals when standard type
  - Use B+, B terminals when using external resistor
- CN1 : Control Signal Connector
- Control Power Connector (C1, C2)
- CN2 : Encoder Signal Connector
- Motor Power Cable Connector (U, V, W)
- Front cover
- Heat Sink
- Ground

[L7N]



- Display
- Mode, Key
- Charge Lamp
- CN5 : USB Connector
- Main Power Connector (L1, L2, L3)
- CN4 : EtherCAT Communication Port(Input)
- CN3 : EtherCAT Communication Port(Output)
- DC Reactor Connector(PO, P⊕) Short-Circuit when not used
- CN6 : STO Connector
- 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)
- CN1 : Control Signal Connector
- CN2 : Encoder Signal Connector
- Motor Power Connector (U, V, W)
- Front cover
- Heat Sink
- Ground

L7S Product Features

Item \ Model			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 10000[P/R] Serial Type 19Bit							
Control Performance	Speed Control	Speed Control Range	Max. 1 : 5000							
		Frequency Response	Max. 1[kHz] or above(When using 19bit Serial Encoder)							
		Speed Command	DC–10[V]~+10[V](Reverse rotation in case of–voltage)							
		Accel/Decel Time	Linear or S–Shape Accel/Decel.(0~10,000[ms], Setting 1[ms] is possible)							
		Speed Variation Ratio	±0.01[%] or less [at Load variation 0 ~ 100%] ±0.1[%] or less [at Temp. 25±10℃]							
	Position Control	Input Frequency	1[Mpps], Line Driver / 200[kpps], Open Collector							
		Input Pulse Type	+Pulse, CW+CCW, A/B Phase							
		Electric Gear Ratio	Setting and selecting 4 digital electric gear ratio, Precise adjustment is possible							
	Torque Control	Torque Command	DC –10 ~ +10[V](Reverse rotation in case of – voltage)							
		Speed Limit	DC 0 ~ +10[V], within ±1[%] of internal speed command							
		Repeatability	±1[%] or less							
Input/Output Signal	Analog Input	Input 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		PC Software and RS422 Server are available							
	USB		Status monitoring, JOG operation, parameter upload/download are available with PC Software							
Encoder			Compatible with Serial BiSS encoder, Parallel encoder							
Encoder Output Type			Random pre–scale output by FPGA(Max. 6.4Mpps)							
Built–in Function	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		Loader([SET], [MODE], [UP], [DOWN] key)							
	Additional Function		Automatic gain tuning function, Z–phase detection, manual JOG operation, program JOG operation, analog–input auto Calibration function							
	Protective Function		Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, contorl power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over–regenerative, sensor problem, communication problem							
Operation Environment	Temperature		0 ~ 50[℃]							
	Humidity		Below 90[%]RH(avoid dew–condensation)							
	Ambient Environment		Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.							

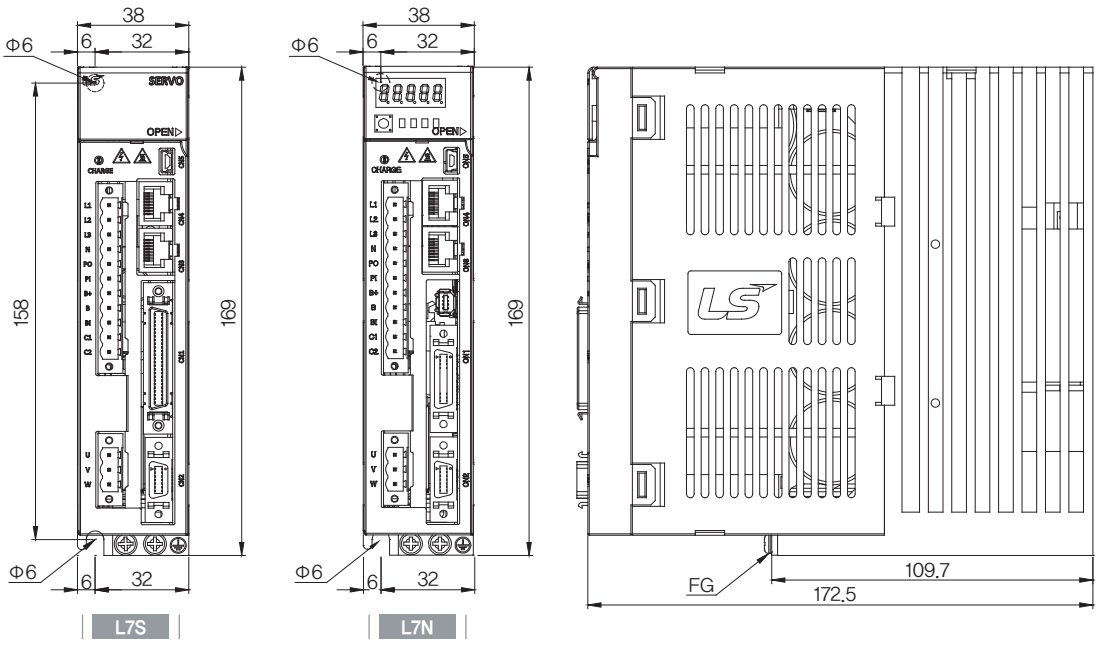
L7N Product Features

Item \ Model			L7NA001B	L7NA002B	L7NA004B	L7NA008B	L7NA010B	L7NA020B	L7NA035B
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
Peak Current[A]			4.2	5.1	9.0	15.6	20.25	40.5	50.1
Encoder Type			Serial 17Bit / 19Bit / 21Bit						
Control Performance		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-voltage)						
		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%						
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 Function	Dynamic Braking		Built-in type(operates when Servo alarm or Servo off)						
	Regenerative Braking		Built-in type, and also external connection is available						
	Display Function		7 segments(5DIGIT)						
	Self-Setting Function		The [MODE] key changes the content displayed in 7 segments.						
	Additional Function		Auto gain tuning function						
	Protective Function		Overcurrent, overload, overvoltage, insufficient voltage, main power input problem, contorl power input problem, overspeed, motor cable, overheat(power module overheat, abnormal drive operation's temp), encoder problem, over-regenerative, sensor problem, communication problem						
Operation Environment		Temperature	0 ~ 50[℃]						
		Humidity	Below 90[%]RH(avoid dew-condensation)						
		Ambient Environment	Indoor, Avoid corrosive, inflammable gas or liquid, and electrically conductive dust.						

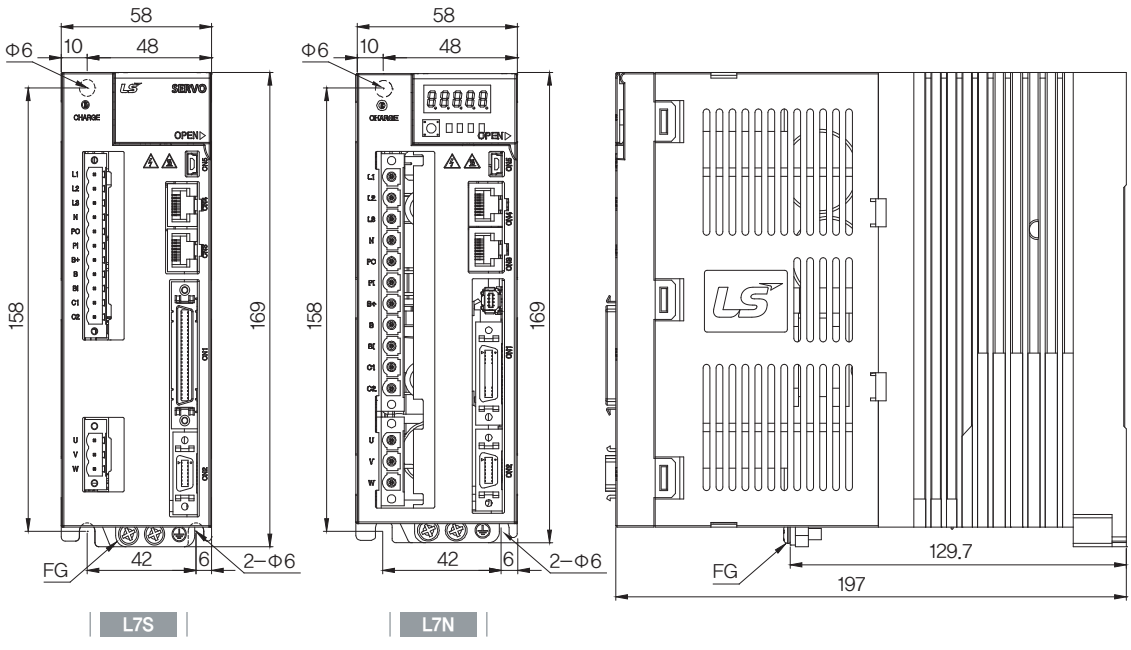
External Dimensions of Servo Drive

■ L7□A001□ ~ L7□A004□ [Weight : 1.2kg]

*Unit [mm]



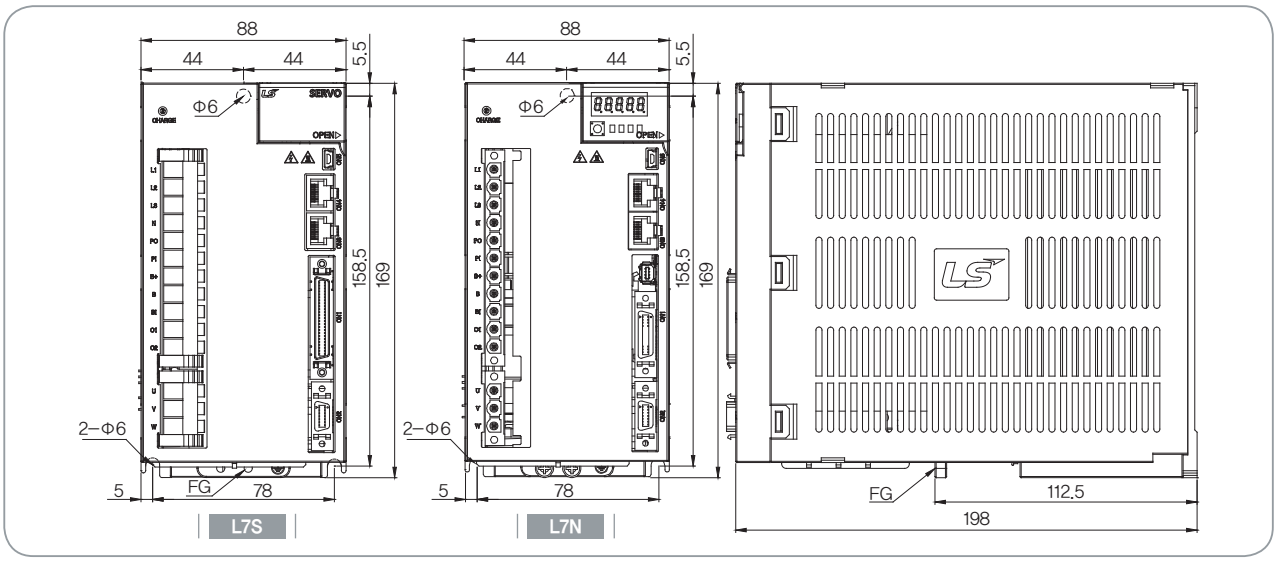
■ L7□A008□ ~ L7□A010□ [Weight : 1.5kg(Fan-Cooling included)]



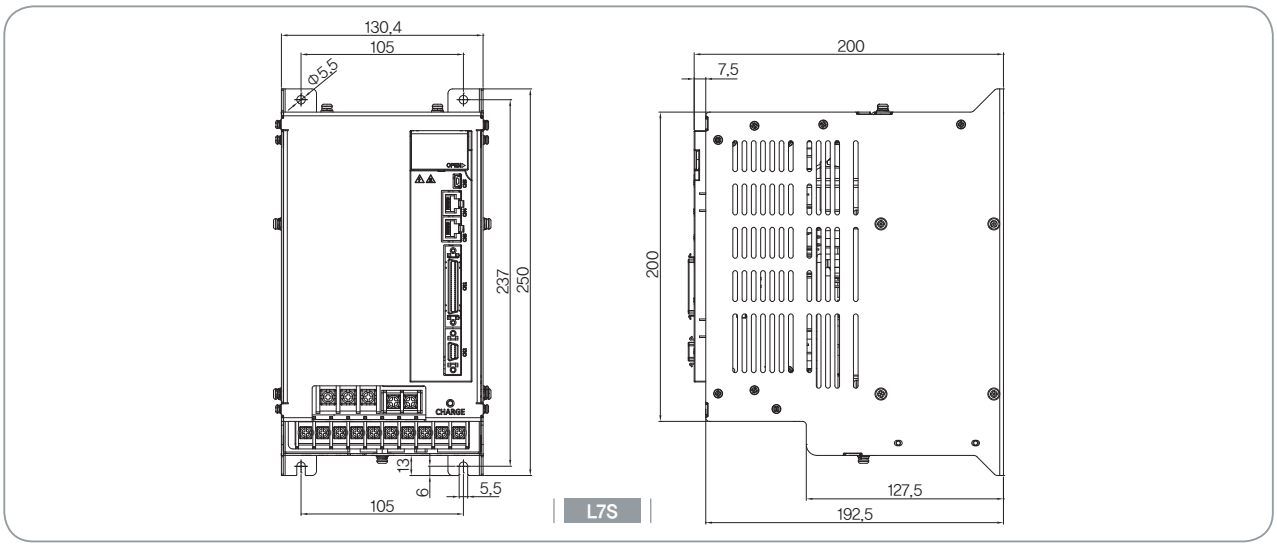
External Dimensions of Servo Drive

L7□A020□ ~ L7□A035□ [Weight : 2.5kg(Fan-Cooling included)]

*Unit [mm]



L7□A050□ [Weight : 5.5kg(Fan-Cooling included)]



Brake Specifications

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℃

APM-SA	APM-SA	APM-SB APM-FB	APM-SC APM-FC	APM-SE APM-FE	APM-SF APM-LF APM-FF	APM-SG APM-LG APM-FG
Purpose	Holding	Holding	Holding	Holding	Holding	Holding
Input Power[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	25
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 type	Spring Brake	Spring Brake	Spring Brake	Spring Brake	Spring Brake	Spring Brake
Insulation Class	F-Class	F-Class	F-Class	F-Class	F-Class	F-Class

External Dimensions of Servo 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)

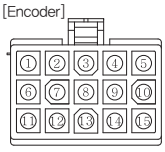
[Brake]

Spec.
: 172165-1
(Made by AMP)

Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]

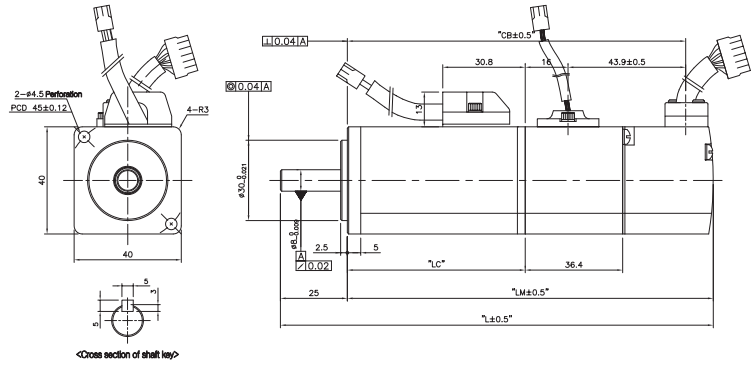


Spec. : 172171-1(Made by AMP)

Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	$\overline{A}$	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	$\overline{U}$		

(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.

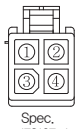


Model	External Dimensions				Weight(kg)
	L	LM	LC	CB	
SAR3A	101.3(137.6)	76.3(112.6)	42.5(42.4)	66.3(102.3)	0.32(0.67)
SAR5A	108.3(144.6)	83.3(119.6)	49.5(49.4)	73.3(109.3)	0.38(0.73)
SA01A	125.3(161.6)	100.3(136.6)	66.5(66.4)	90.3(126.3)	0.5(0.85)
SA015A	145.3	120.3	86.5	110.3	0.7

SB Series

Plug Specifications

[Power]

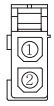


Spec.
: 172167-1
(Made by AMP)

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

(Power Connector Pin Table)

[Brake]

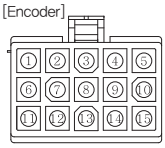


Spec.
: 172165-1
(Made by AMP)

Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]

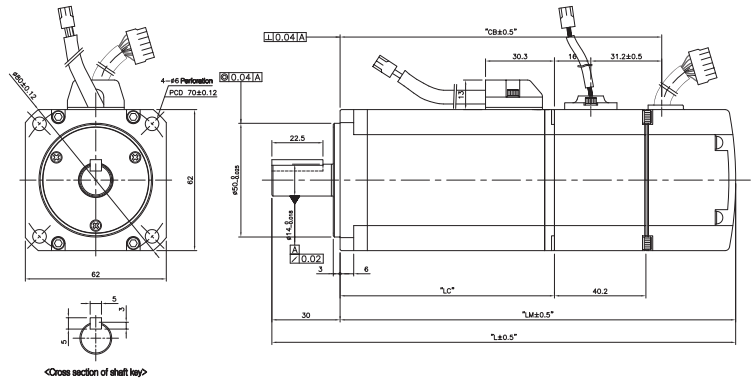


Spec. : 172171-1(Made by AMP)

Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	$\overline{A}$	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	$\overline{U}$		

(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				Weight(kg)
	L	LM	LC	CB	
SB01A	122(162)	92(132)	52.5(52.3)	59.5(99.5)	0.82(1.4)
SB02A	136(176)	106(146)	66.5(66.3)	73.5(113.5)	1.08(1.66)
SB04A	164(199)	134(169)	94.5(94.3)	101.5(141.5)	1.58(2.16)

External Dimensions of Servo Motor

SC 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)

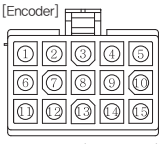
[Brake]

Spec.
: 172165-1
(Made by AMP)

Pin No.	Signal
1	BK+
2	BK-

(Brake Connector Pin Table)

[Encoder]

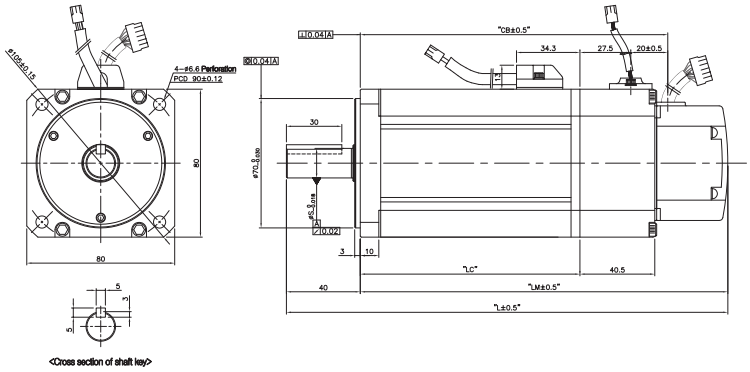


Spec. : 172171-1(Made by AMP)

Pin No.	Signal	Pin No.	Signal
1	A	9	V
2	$\overline{A}$	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	$\overline{U}$		

(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.

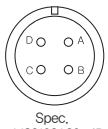


Model	External Dimensions					Weight(kg)
	L	LM	LC	CB	S	
SC04A, SC03D	158.5(198.8)	118.5(158.8)	79(78.8)	86(126.3)	14	1.88(2.92)
SC06A, SC05D	178.5(218.8)	138.5(178.8)	99(98.8)	106(146.3)	16	2.52(3.56)
SC08A, SC06D	198.5(238.8)	158.5(198.8)	119(118.8)	126(166.3)	16	3.15(4.22)
SC10A, SC07D	218.5(258.8)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

SE Series

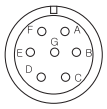
Plug Specifications

[Power]



Spec.
: MS3102A20-4P
(Standard)

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

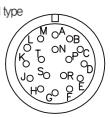


Spec.
: MS3102A20-15P
(Brake-attached type)

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

[Encoder]

1)Incremental type

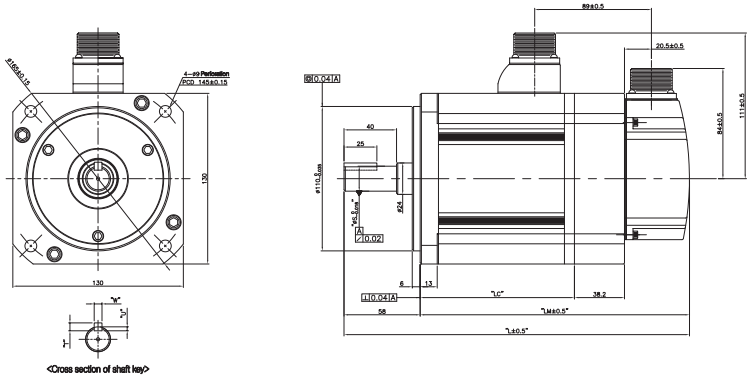


Spec.
: MS3102A20-29P

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

(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.



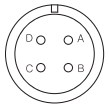
Model	External Dimensions				Key			Weight(kg)
	L	LM	LC	S	T	W	U	
SE09A, SE06D, SE05G, SE03M	201.3(239.3)	143.3(181.3)	93.8(93.6)	19	5	5	3	5.5(7.04)
SE15A, SE11D, SE09G, SE06M	225.3(263.3)	167.3(205.3)	117.8(117.6)					7.54(9.08)
SE22A, SE16D, SE13G, SE09M	249.3(287.3)	191.3(229.3)	141.8(141.6)	22	6	6	3.5	9.68(11.22)
SE30A, SE22D, SE17G, SE12M	273.3(311.3)	215.3(253.3)	165.8(165.6)					11.78(13.32)

External Dimensions of Servo Motor

SF, LF Series

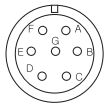
Plug Specifications

[Power]



Spec.
: MS3102A22-22P
(Standard)

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

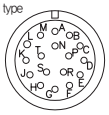


Spec.
: MS3102A24-10P
(Brake-attached type)

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

[Encoder]

1)Incremental type

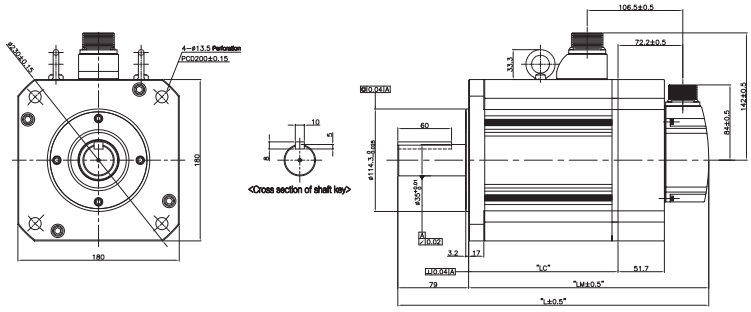


Spec.
: MS3102A20-29P

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

(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.
Note5) Use MS3102A32-17 for SF75G Power connector.

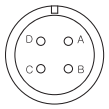


Model	External Dimensions				Key					Weight(kg)
	L	LM	LC	LR	S	QW	T	W	U	
SF30A, SF22D, SF20G, SF12M	261.5(312.9)	182.5(233.9)	133(132.7)	79	$35^{+0.01}_{0}$	60	8	10	5	12.4(19.2)
SF50A, SF35D, SF30G, SF20M, LF35D, LF30G	295.5(346.9)	216.5(267.9)	167(166.7)							17.7(24.9)
SF55D, SF44G, SF30M, LF30M	345.5(396.9)	266.5(317.9)	217(216.7)							26.3(33.4)
SF75D, SF60G, SF44M	405.5(456.9)	326.5(377.9)	277(276.7)							35.6(42.8)
SF75G Note5)	457.5	344.5	295	113	$42^{0}_{-0.016}$	96	8	12	5	39.4

SG, LG Series

Plug Specifications

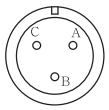
[Power]



Spec.
: MS3102A22-22P
(Standard)

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

[Brack]

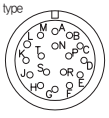


Spec.
: MS3102A14S-7P
(Brake-attached type)

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

[Encoder]

1)Incremental type

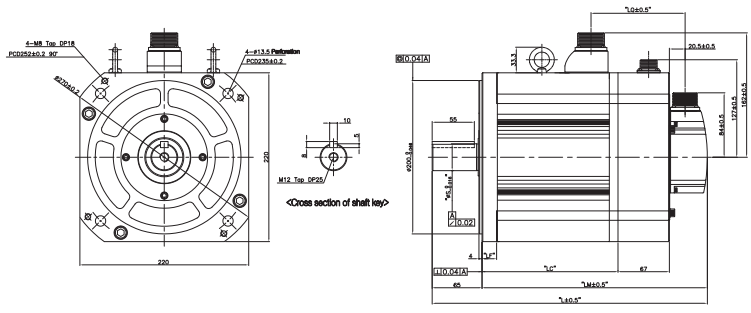


Spec.
: MS3102A20-29P

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

(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	Weight(kg)
	L	LM	LC	LF	LQ	S	
SG22D, SG20G, SG12M	236.5(302.7)	171.5(237.7)	122(121.2)	19	56.4(122.6)	35	16.95(30.76)
SG35D, SG30G, SG20M, LG35D, LG30G	256.5(322.7)	191.5(257.7)	142(141.2)				21.95(35.7)
SG55D, SG44G, SG30M, LG30M	292.5(358.7)	227.5(293.7)	178(177.2)				30.8(44.94)
SG75D, SG60G, SG44M	320.5(386.7)	255.5(321.7)	206(205.2)				37.52(50.94)
SG60M Note5)	418.5(484.7)	353.5(419.7)	304(303.2)	21	66(132.2)	42	

External Dimensions of Servo Motor

HB Series [Hollow Shaft type]

Plug Specifications

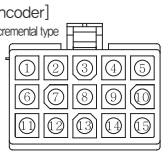
[Power]

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)

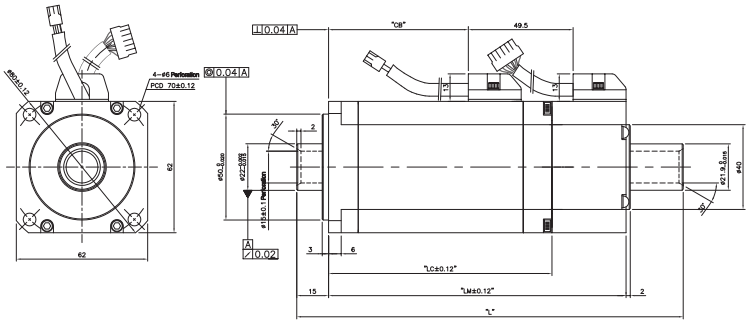
[Encoder]
1)Incremental type



Spec. : 172171-1(Made by AMP)

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	$\overline{U}$		

(Parallel Encoder Connector Pin Table)



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

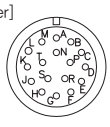
[Power]

Spec.
: MS3102A20-4P
(Standard)

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

(Power Connector Pin Table)

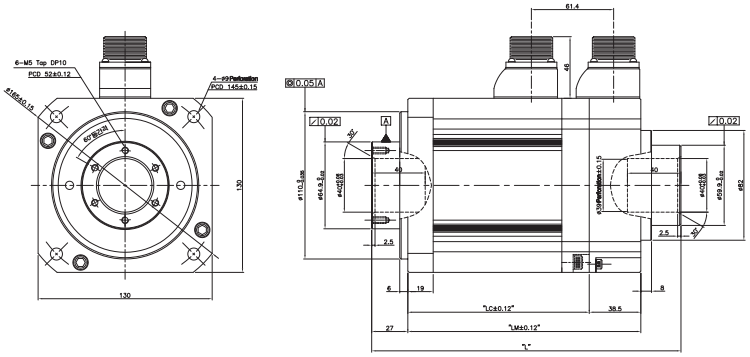
[Encoder]



Spec.
: MS3102A20-29P

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

(Parallel Encoder Connector Pin Table)



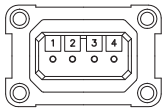
Model	External Dimensions				Weight(kg)
	L	LM	LC	Hollow Shaft	
HE09A	207	150	111.5	40	5.82
HE15A	231	174	135.5	40	7.43
HE30A	279	222	183.5	40	

External Dimensions of Servo Motor

FB Series

Plug Specifications

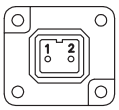
[Power]



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]

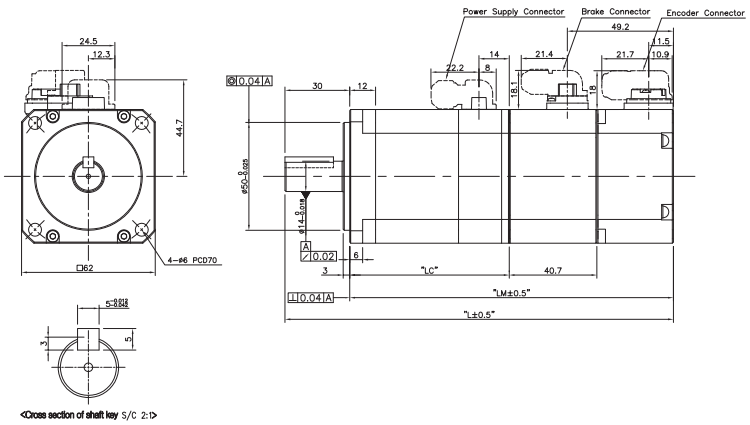
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	–	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	$\overline{MA}$	6	$\overline{MA}$
7	$\overline{SLO}$	7	$\overline{SLO}$
8	–	8	VDD_B
9	+5V	9	+5V

(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.

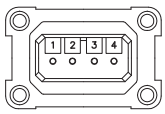


Model	External Dimensions			Weight(kg)
	L	LM	LC	
FB01A	109(149.2)	79(119.2)	43.5(43)	0.72(1.27)
FB02A	120(160.2)	90(130.2)	54.5(54)	0.94(1.49)
FB04A	140(180.2)	110(150.2)	74.5(74)	1.32(1.87)

FC Series

Plug Specifications

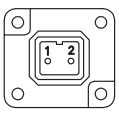
[Power]



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

(Power Connector Pin Table)

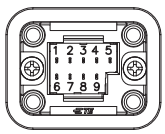
[Brake]



Pin No.	Signal
1	BK+
2	BK–

(Brake Connector Pin Table)

[Encoder]



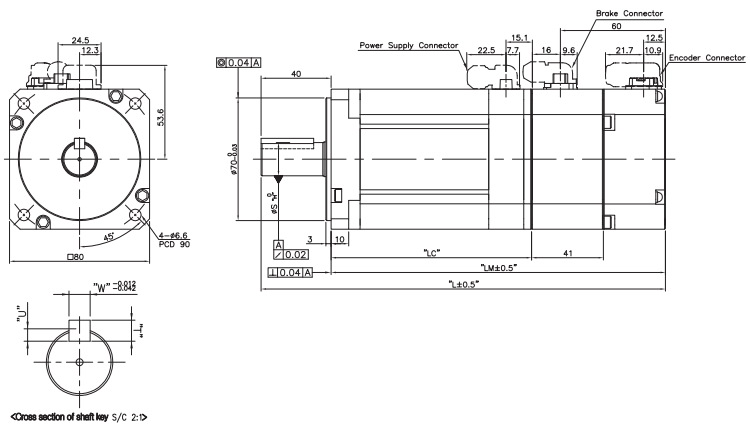
Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	SLO	2	SLO
3	–	3	GND_B
4	0V	4	0V
5	SHIELD	5	SHIELD
6	$\overline{MA}$	6	$\overline{MA}$
7	$\overline{SLO}$	7	$\overline{SLO}$
8	–	8	VDD_B
9	+5V	9	+5V

(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.



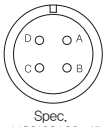
Model	External Dimensions							Weight(kg)
	L	LM	LC	S	T	W	U	
FC04A, FC03D	136.5(177)	96.5(137)	61(60.5)	14	5	5	3	1.56(2.71)
FC06A, FC05D	154.5(195)	114.5(155)	79(78.5)	19	6	6	3.5	2.18(3.33)
FC08A, FC06D	172.5(213)	132.5(173)	97(96.5)	19	6	6	3.5	2.72(3.87)
FC10A, FC07D	190.5(231)	150.5(191)	115(114.5)	19	6	6	3.5	3.80(4.94)

External Dimensions of Servo Motor

FE Series

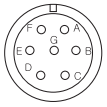
Plug Specifications

[Power]



Spec.
: MS3102A20-4P
(Standard)

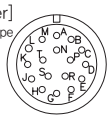
Pin No.	Signal
A	U
B	V
C	W
D	Ground



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

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

[Encoder]
2)Serial type



Spec.
: MS3102A20-29P

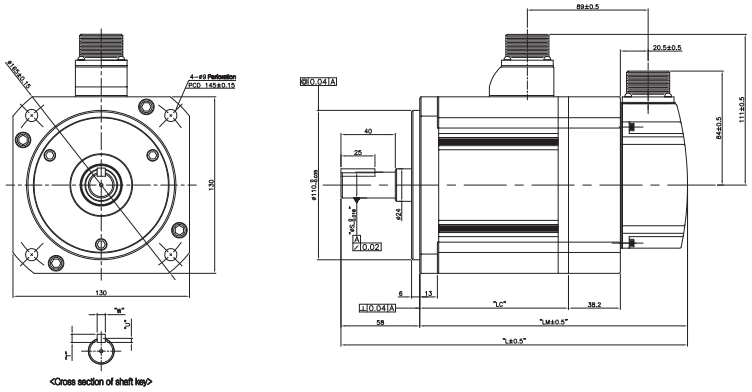
Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	$\overline{MA}$	N	-
C	SLO	P	-
D	$\overline{SLO}$	R	-
E	-	H	+5V
F	-	G	0V
K	-	J	SHIELD
L	-		

(Single Turn Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	$\overline{MA}$	N	-
C	SLO	P	-
D	$\overline{SLO}$	R	-
E	VOD_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.

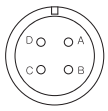


Model	External Dimensions							Weight(kg)
	L	LM	LC	S	T	W	U	
FE09A, FE06D, FE05G, FE03M	197.3(235.3)	139.3(177.3)	89.8(89.6)	19	5	5	3	5.04(6.58)
FE15A, FE11D, FE09G, FE06M	217.3(255.3)	159.3(197.3)	109.8(109.6)	19	5	5	3	6.74(8.28)
FE22A, FE16D, FE13G, FE09M	237.3(275.3)	179.3(217.3)	129.8(129.6)	22	6	6	3.5	8.48(10.02)
FE30A, FE22D, FE17G, FE12M	255.3(235.3)	197.3(235.3)	147.8(147.6)	24	7	8	4	10.05(11.59)

FF Series

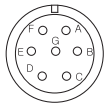
Plug Specifications

[Power]



Spec.
: MS3102A22-22P
(Standard)

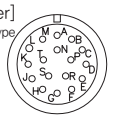
Pin No.	Signal
A	U
B	V
C	W
D	Ground



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

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

[Encoder]
2)Serial type



Spec.
: MS3102A20-29P

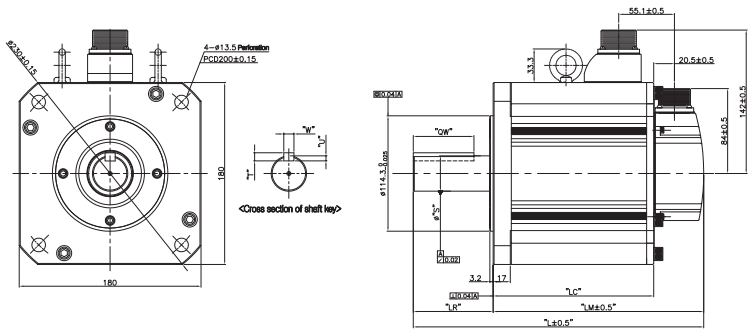
Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	$\overline{MA}$	N	-
C	SLO	P	-
D	$\overline{SLO}$	R	-
E	-	H	+5V
F	-	G	0V
K	-	J	SHIELD
L	-		

(Single Turn Encoder Connector Pin Table)

Pin No.	Signal	Pin No.	Signal
A	MA	M	-
B	$\overline{MA}$	N	-
C	SLO	P	-
D	$\overline{SLO}$	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	257.5(308.9)	178.5(229.9)	129(128.7)	79	35 +0.01 0	60	8	10	5	12.5(19.7)
FF50A, FF35D, FF30G, FF20M	287.5(338.9)	208.5(259.9)	159(158.7)							17.4(24.6)
FF55D, FF44G, FF30M	331.5(382.9)	252.5(303.9)	203(202.7)							25.2(32.4)
FF75D, FF60G, FF44M	384.5(435.9)	305.5(356.9)	256(234.7)	113	42 0 -0.016	96		12		33.8(41.0)
FF75G Note4)	439.5	326.5	277							38.5(45.7)

External Dimensions of Servo Motor

FG Series

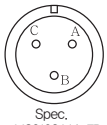
Plug Specifications

[Power]

Spec.
: MS3102A22-22P
(Standard)

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

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

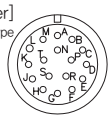


Spec.
: MS3102A14-7P
(Brake-attached type)

Pin No.	Signal	Pin No.	Signal
A	MA	M	–
B	$\overline{MA}$	N	–
C	SLO	P	–
D	$\overline{SLO}$	R	–
E	–	H	+5V
F	–	G	0V
K	–	J	SHIELD
L	–		

(Single Turn Encoder Connector Pin Table)

[Encoder]
2)Serial type

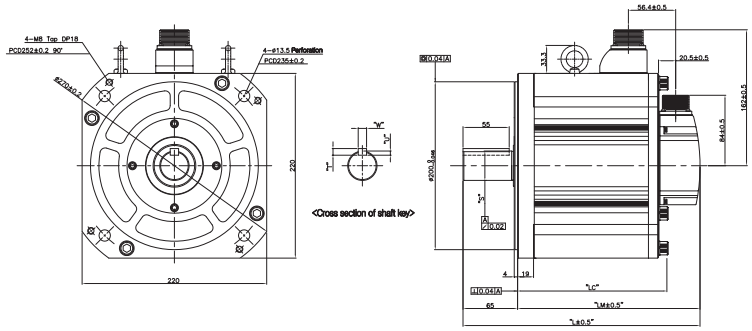


Spec.
: MS3102A20-29P

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

(Multi Turn Encoder Connector Pin Table)

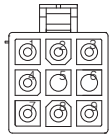
Note1) In case of SG, use DC[90V] for brake input power supply.
Note2) The ( ) is for brake-attached type.



Model	External Dimensions			Key				Weight(kg)
	L	LM	LC	S	T	W	U	
FG22D, FG20G, FG12M	229.5(295.7)	164.5(230.7)	115(114.2)	$35^{+0.01}_{0}$	8	10	5	15.42(29.23)
FG35D, FG30G, FG20M	250.5(316.7)	185.5(251.7)	136(135.2)					20.22(34.03)
FG55D, FG44G, FG30M	282.5(348.7)	217.5(283.7)	168(167.2)					28.02(41.83)
FG75D, FG60G, FG44M	304.5(370.7)	239.5(305.7)	190(189.2)	$42_{-0.016}^{0}$		12		33.45(47.26)

S Series Encoder Pin Map

SA, SB, SC Series

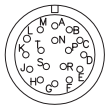


Plug Specification : 172169-1
(AMP)

Single Turn (N)		Multi Turn (M)	
Pin No.	Signal	Pin No.	Signal
1	MA	1	MA
2	$\overline{MA}$	2	$\overline{MA}$
3	SLO	3	SLO
4	$\overline{SLO}$	4	$\overline{SLO}$
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	$\overline{MA}$	N	–	B	$\overline{MA}$	N	–
C	SLO	P	–	C	SLO	P	–
D	$\overline{SLO}$	R	–	D	$\overline{SLO}$	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〉

Test Standard for Heat Sink

Flange	Standard(mm)	Material
40	250×250×6	Aluminum
60	250×250×6	
80	250×250×12	
130	350×350×20	
180	550×550×30	
220	650×650×35	
250	950×950×35	
280	950×950×35	

Note) Those heat sinks are the same as the heat sinks applied for servo motor torque test.

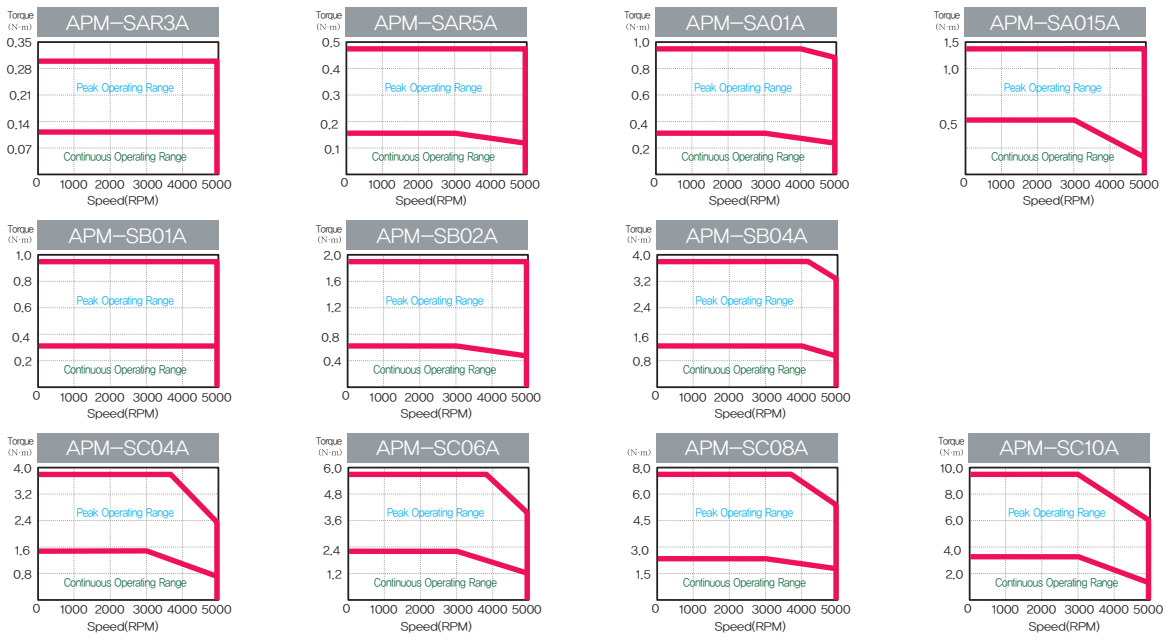
Servo Motor Characteristics(S Series)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM-□□□□)		SAR3A	SAR5A	SA01A	SA015A	SB01A	SB02A	SB04A	SC04A	SC06A	SC08A	SC10A
Applicable Drive		L7□A001			L7□A002			L7□A004		L7□A008		L7□A010
Flange Size(□)		□40				□60			□80			
Rated Output	[kW]	0.03	0.05	0.1	0.15	0.1	0.2	0.4	0.4	0.6	0.8	1.0
Rated Torque	[N · m]	0.095	0.16	0.32	0.48	0.32	0.64	1.27	1.27	1.91	2.55	3.19
	[kgf · cm]	0.97	1.62	3.25	4.87	3.25	6.49	12.99	12.99	19.50	25.98	32.48
Max. Instantaneous	[N · m]	0.286	0.48	0.96	1.43	0.96	1.91	3.82	3.82	5.73	7.64	9.56
	[kgf · cm]	2.92	4.87	9.74	14.62	9.74	19.48	38.96	38.96	58.47	77.95	97.43
Rated Speed	[r/min]	3000										
Max. Speed	[r/min]	5000										
Inertia	[kg · m^2×10^{-4}]	0.0164	0.02	0.05	0.06	0.11	0.18	0.32	0.67	1.09	1.51	1.93
	[gf · cm×s^2]	0.0167	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]	5.56	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)	Parallel, Type Incremental 2048[P/R]				Parallel, Type Incremental 3000[P/R]						
	Option	Serial Type 18[Bit]				Serial Type 19[Bit]						
Specifications & Features	Structure	Fully closed · Self cooling IP55(excluding the shaft-through section)							Fully closed · Self cooling IP65 (excluding the shaft-through section)			
	Rated Time	Continuous										
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]										
	Ambient Humidity	Below 90[%](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]	0.32	0.38	0.5	0.7	0.82	1.08	1.58	1.88	2.52	3.15	3.80

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics



Servo Motor Characteristics(S Series)

Motor Specifications [Rated 3000r/min]

Servo Motor (APM-□□□□)		SE09A	SE15A	SE22A	SE30A	SF30A	SF50A	HB01A	HB02A	HB04A	HE09A	HE15A	HE30A
Applicable Drive		L7□A010	L7□A020		L7□A035		L7□A050	L7□A002		L7□A004	L7□A010	L7□A020	L7□A035
Flange Size(□)		□130				□180		□60			□130		
Rated Output	[kW]	0.9	1.5	2.2	3.0	3.0	5.0	0.1	0.2	0.4	0.9	1.5	3.0
Rated Torque	[N · m]	2.86	4.77	7.00	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
Max. Instantaneous	[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 Speed	[r/min]	3000											
Max. Speed	[r/min]	5000						3500					
Inertia	[kg · m^2×10^{-4}]	6.66	12.00	17.34	22.68	30.74	52.13	0.27	0.33	0.46	19.56	22.27	31.81
	[gf · cm×s^2]	6.80	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)	Parallel, Type Incremental 3000[P/R]						Parallel, Type Incremental 1024[P/R]			Parallel, Type Incremental 2048[P/R]		
	Option	Serial Type 19[Bit]						X					
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)						Fully closed · Self cooling IP55(excluding the shaft-through section)					
	Rated Time	Continuous											
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]						Operating : 0 ~ 40[℃] Storage : -10 ~ 60[℃]					
	Ambient Humidity	Below 90[%](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	0.89	1.16	1.69	5.82	7.43	

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

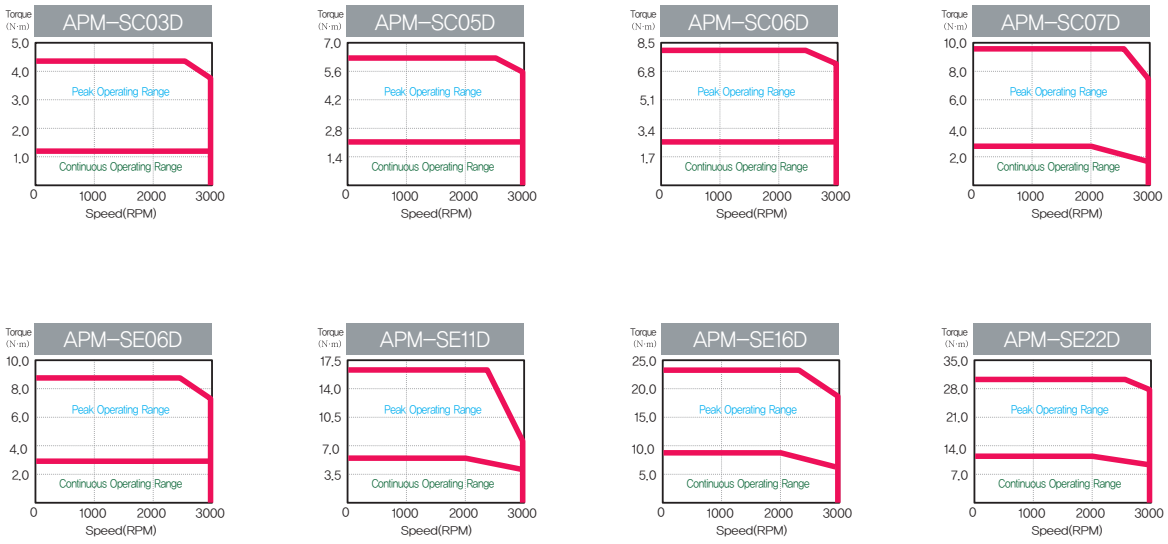
Servo Motor Characteristics(S Series)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		SC03D	SC05D	SC06D	SC07D	SE06D	SE11D	SE16D	SE22D
Applicable Drive		L7□A004	L7□A008			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	3.10	2.86	5.25	7.64	10.50
	[kgf · cm]	14.61	21.92	26.79	31.66	29.23	53.59	77.94	107.17
Max. Instantaneous	[N · m]	4.30	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 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	12.00	17.34	22.68
	[gf · cm×s^2]	0.69	1.11	1.54	1.97	6.80	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)	Parallel. Type Incremental 3000[P/R]							
	Option	Serial Type 19[Bit]							
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]							
	Ambient Humidity	Below 90[%](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]	1.88	2.52	3.15	3.80	5.5	7.54	9.68	11.78

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics



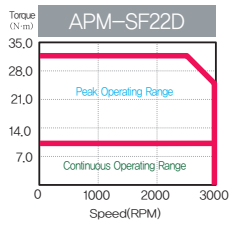
Servo Motor Characteristics(S Series)

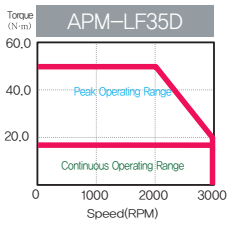
Motor Specifications [Rated 2000r/min]

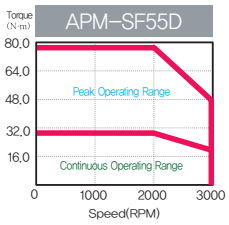
Servo Motor (APM-□□□□)		SF22D	LF35D	SF55D	SF75D	SG22D	LG35D	SG55D	SG75G
Applicable Drive		L7□A020	L7□A035	L7□A050	L7□A075	L7□A020A	L7□A035A	L7□A050A	L7□A075A
Flange Size(□)		□180				□220			
Rated Output	[kW]	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5
Rated Torque	[N · m]	10.50	16.71	26.26	35.81	10.50	16.71	26.26	35.81
	[kgf · cm]	107.17	170.50	267.93	365.36	107.20	170.52	267.90	365.40
Max. Instantaneous	[N · m]	31.51	50.13	78.77	89.51	31.51	50.13	78.77	89.51
	[kgf · cm]	321.52	511.51	803.80	913.41	321.52	511.51	803.80	913.41
Rated Speed	[r/min]	2000							
Max. Speed	[r/min]	3000			2500	3000			2500
Inertia	[kg · m^2×10^{-4}]	30.74	52.13	83.60	121.35	51.42	80.35	132.41	172.91
	[gf · cm×s^2]	31.35	53.16	85.24	123.74	52.47	81.99	135.11	176.44
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
Speed/Position Detector	Standard(Note1)	Parallel, Type Incremental 3000[P/R]							
	Option	Serial Type 19[Bit]							
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]							
	Ambient Humidity	Below 90[%](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]	12.4	17.7	26.3	35.6	16.95	21.95	30.8	37.52

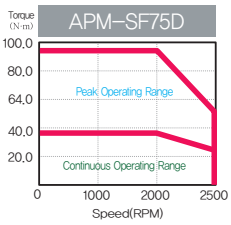
Note1) L7□A075 Servo Drive is Coming soon.

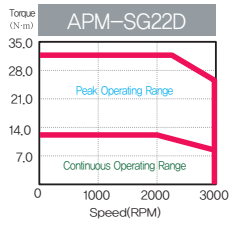
Speed-Torque Characteristics

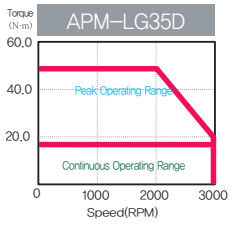


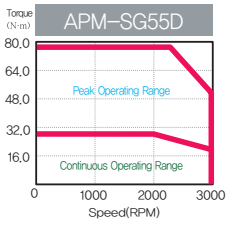


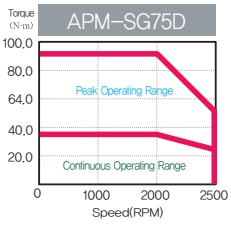












Servo Motor Characteristics(S Series)

Motor Specifications [Rated 1500r/min]

Servo Motor (APM-□□□□)		SE05G	SE09G	SE13G	SE17G	SF20G	LF30G	SF44G	SF60G	SG20G	LG30G	SG44G	SG60G
Applicable Drive		L7□A008	L7□A010	L7□A020		L7□A035		L7□A050	L7□A075	L7□A020	L7□A035	L7□A050	L7□A075
Flange Size(□)		□130				□180				□220			
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6.0	1.8	2.9	4.4	6.0
Rated Torque	[N · m]	2.86	5.41	8.28	10.82	11.46	18.46	28.01	38.19	11.46	18.46	28.01	38.19
	[kgf · cm]	29.23	55.21	84.44	110.42	116.92	188.37	285.80	389.72	116.92	188.37	285.80	389.72
Max. Instantaneous	[N · m]	8.59	16.23	24.83	32.46	34.37	55.38	84.02	95.48	34.47	55.38	84.02	95.48
	[kgf · cm]	87.69	165.63	253.32	331.26	350.75	565.10	857.39	974.90	350.80	565.10	857.39	974.31
Rated Speed	[r/min]	1500											
Max. Speed	[r/min]	3000				3000	2700	3000	2500	3000	2700	3000	2500
Inertia	[kg · m^2×10^{-4}]	6.66	12.00	17.34	22.68	30.74	52.13	83.60	121.35	51.42	80.35	132.41	172.91
	[gf · cm×s^2]	6.80	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	24.40	39.49	51.63	42.71	65.37	93.83	120.21	25.53	42.41	59.24	84.36
Speed/Position Detector	Standard(Note1)	Parallel, Type Incremental 3000[P/R]											
	Option	Serial Type 19[Bit]											
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)											
	Rated Time	Continuous											
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]											
	Ambient Humidity	Below 90[%](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

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

Servo Motor Characteristics(S Series)

Motor Specifications [Rated 1000r/min]

Servo Motor (APM-□□□□)		SE03M	SE06M	SE09M	SE12M	SF12M	SF20M	LF30M	SF44M	SG12M	SG20M	LG30M	SG44M	SG60M
Applicable Drive		L7□A004	L7□A008	L7□A010	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	2.0	3.0	4.4	1.2	2.0	3.0	4.4	6.0
Rated Torque	[N · m]	2.86	5.73	8.59	11.46	11.46	19.10	28.64	42.01	11.46	19.10	28.64	42.01	57.29
	[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	584.58
Max. Instantaneous	[N · m]	8.59	17.19	25.78	34.37	34.37	57.29	85.93	126.04	34.37	57.29	85.93	126.04	171.87
	[kgf · cm]	87.69	175.30	263.06	350.75	350.75	584.58	876.88	1286.08	350.75	584.58	876.88	1286.08	1753.75
Rated Speed	[r/min]	1000												
Max. Speed	[r/min]	2000						1700	2000			1700	2000	
Inertia	[kg · m^2×10^{-4}]	6.66	12.00	17.34	22.68	30.74	52.13	83.60	121.35	51.42	80.35	132.41	172.91	291.36
	[gf · cm×s^2]	6.80	12.24	17.69	23.14	31.37	53.19	85.31	123.83	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]	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)	Parallel, Type Incremental 3000[P/R]												
	Option	Serial Type 19[Bit]												
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)												
	Rated Time	Continuous												
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]												
	Ambient Humidity	Below 90[%](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	17.0	22.0	30.8	37.5	66.2

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

Servo Motor Characteristics(F Series)

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□A008		L7□A010		L7□A020		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	0.9	1.5	2.2	3.0	3.0	5.0
Rated Torque	[N · m]	0.32	0.64	1.27	1.27	1.91	2.39	3.18	2.86	4.77	7.00	9.55	9.55	15.91
	[kgf · cm]	3.25	6.50	12.99	13.00	19.50	24.36	32.50	29.20	48.70	71.40	97.40	97.40	162.30
Max. Instantaneous	[N · m]	0.96	1.91	3.82	3.82	5.73	7.16	9.55	8.59	14.32	21.01	28.65	28.65	47.74
	[kgf · cm]	9.74	19.49	38.98	38.98	58.47	73.08	97.44	87.70	146.10	214.30	292.20	292.30	487.00
Rated Speed	[r/min]	3000												
Max. Speed	[r/min]	5000						4500	5000					
Inertia	[kg · m^2×10^{-4}]	0.09	0.15	0.25	0.50	0.88	1.25	1.62	5.66	10.18	14.62	19.04	27.96	46.56
	[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	47.51
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	32.59	54.33
Speed/Position Detector	Standard(Note1)	Serial Type 19[Bit]												
	Option	X												
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)												
	Rated Time	Continuous												
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]												
	Ambient Humidity	Below 90[%](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]	0.72	0.94	1.32	1.56	2.18	2.72	3.80	5.04	6.74	8.48	10.05	12.5	17.4

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

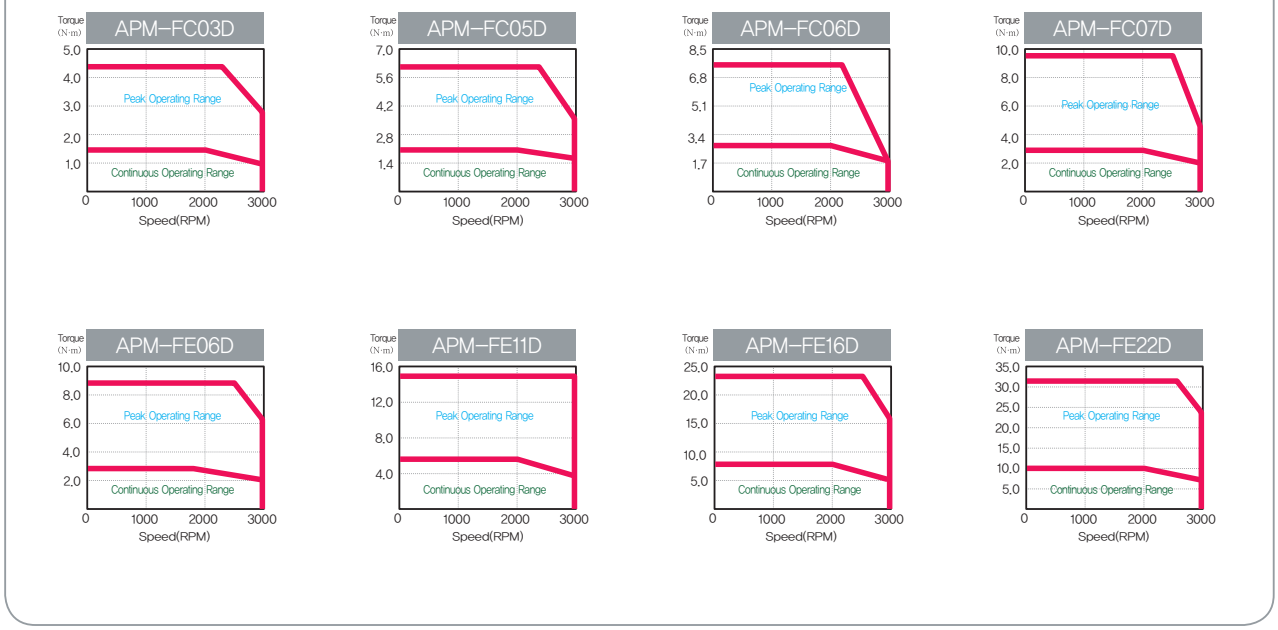
Servo Motor Characteristics(F Series)

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	2.60	3.10	2.86	5.25	7.63	10.50
	[kgf · cm]	14.60	21.90	26.80	31.70	29.20	53.60	77.90	107.10
Max. Instantaneous	[N · m]	4.30	6.45	7.88	9.31	8.59	15.75	22.92	31.51
	[kgf · cm]	43.80	65.80	80.40	95.00	87.70	160.70	233.80	321.40
Rated Speed	[r/min]	2000							
Max. Speed	[r/min]	3000							
Inertia	[kg · m^2×10^{-4}]	0.50	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 Type 19[Bit]							
	Option	X							
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]							
	Ambient Humidity	Below 90[%](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]	1.56	2.18	2.72	3.8	5.04	6.74	8.48	10.05

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics



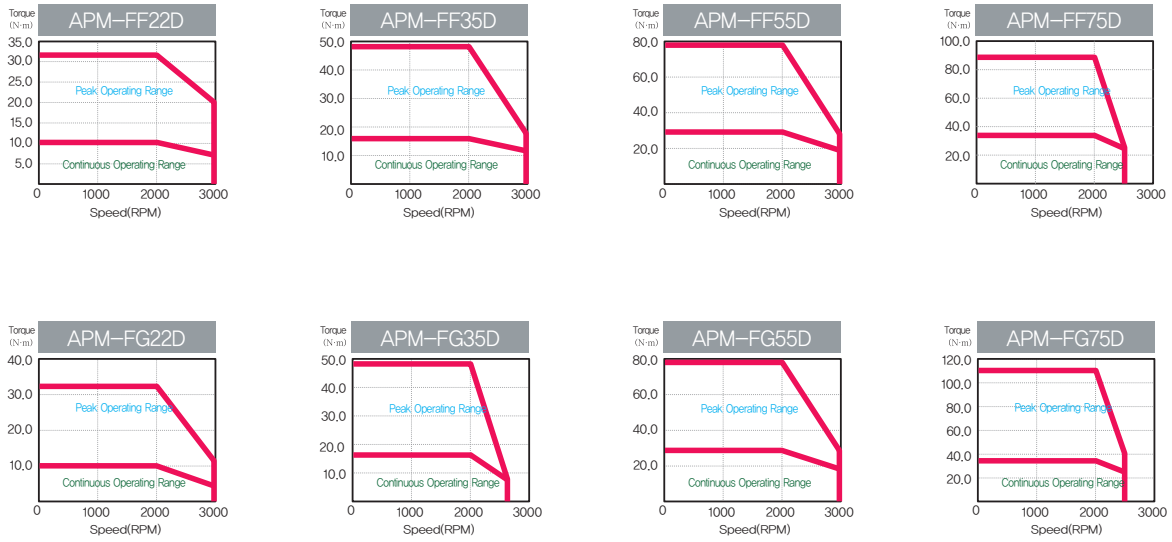
Servo Motor Characteristics(F Series)

Motor Specifications [Rated 2000r/min]

Servo Motor (APM-□□□□)		FF22D	FF35D	FF55D	FF75D	FG22D	FG35D	FG55D	FG75D
Applicable Drive		L7□A020	L7□A035	L7□A050	L7□A075	L7□A020	L7□A035	L7□A050	L7□A075
Flange Size(□)		□180				□220			
Rated Output	[kW]	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5
Rated Torque	[N · m]	10.50	16.70	26.25	35.81	10.50	16.71	26.25	35.81
	[kgf · cm]	107.10	170.40	267.80	365.40	107.10	170.40	267.80	365.40
Max. Instantaneous	[N · m]	31.50	50.10	78.76	89.53	31.51	50.12	78.76	89.53
	[kgf · cm]	321.30	511.40	803.40	913.50	321.30	511.30	803.40	913.50
Rated Speed	[r/min]	2000							
Max. Speed	[r/min]	3000			2500	3000	2700	3000	2500
Inertia	[kg · m^2×10^{-4}]	27.96	46.56	73.85	106.70	41.13	71.53	117.72	149.40
	[gf · cm×s^2]	28.53	47.51	75.36	108.90	41.97	72.99	120.12	152.45
Allowable Load Inertia Ratio		5 times of motor inertia							
Rated Power Rate	[kW/s]	39.43	59.89	93.27	120.15	26.78	38.99	58.51	85.83
Speed/Position Detector	Standard(Note1)	Serial Type 19[Bit]							
	Option	X							
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)							
	Rated Time	Continuous							
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]							
	Ambient Humidity	Below 90[%](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	25.2	33.8	15.42	20.22	28.02	33.45

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics



Servo Motor Characteristics(F Series)

Motor Specifications [Rated 1500r/min]

Servo Motor (APM-□□□□)		FE05G	FE09G	FE13G	FE17G	FF20G	FF30G	FF44G	FF60G	FF75G	FG20G	FG30G	FG44G	FG60G
Applicable Drive		L7□A008	L7□A010	L7□A020		L7□A020	L7□A035	L7□A050	L7□A075		L7□A020	L7□A035	L7□A050	L7□A075
Flange Size(□)		□130				□180					□220			
Rated Output	[kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6.0	7.5	1.8	2.9	4.4	6.0
Rated Torque	[N · m]	2.86	5.41	8.27	10.82	11.45	18.46	28.00	38.20	47.70	11.50	18.50	28.00	38.20
	[kgf · cm]	29.22	55.19	84.41	110.38	116.90	188.30	285.70	389.80	487.20	116.90	188.40	285.80	389.70
Max. Instantaneous	[N · m]	8.59	16.23	24.82	32.46	34.35	55.38	84.03	95.50	143.20	34.40	55.40	84.00	95.50
	[kgf · cm]	87.66	165.57	253.23	331.14	350.60	564.90	857.10	974.90	1462.00	350.80	565.10	857.40	974.30
Rated Speed	[r/min]	1500												
Max. Speed	[r/min]	3000					2700	3000	2500	2200	3000	2700	3000	2500
Inertia	[kg · m^2×10^{-4}]	5.66	10.18	14.62	19.04	27.96	46.56	73.85	106.70	131.30	41.97	71.53	117.72	149.40
	[gf · cm×s^2]	5.77	10.39	14.92	19.43	28.53	47.51	75.36	108.90	134.00	41.97	72.99	120.12	152.45
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
Speed/Position Detector	Standard(Note1)	Serial Type 19[Bit]												
	Option	X												
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)												
	Rated Time	Continuous												
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]												
	Ambient Humidity	Below 90[%](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]	5.04	6.74	8.48	10.05	12.5	17.4	25.2	33.8	38.5	15.42	20.22	28.02	33.45

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

Servo Motor Characteristics(F Series)

Motor Specifications [Rated 1000r/min]

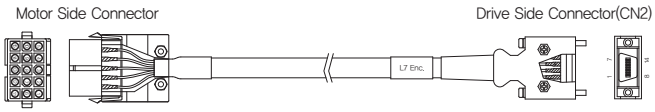
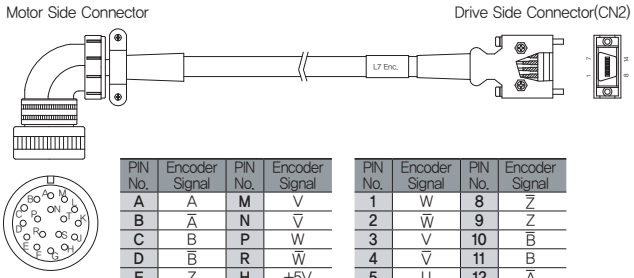
Servo Motor (APM-□□□□)		FE03M	FE06M	FE09M	FE12M	FF12M	FF20M	FF30M	FF44M	FG12M	FG20M	FG30M	FG44M
Applicable Drive		L7□A004	L7□A008	L7□A010	L7□A020			L7□A035	L7□A050	L7□A020		L7□A035	L7□A050
Flange Size(□)		□130				□180				□220			
Rated Output	[kW]	0.3	0.6	0.9	1.2	1.2	2.0	3.0	4.4	1.2	2.0	3.0	4.4
Rated Torque	[N · m]	2.86	5.72	8.59	11.46	11.46	19.09	28.64	42.02	11.50	19.10	28.60	42.00
	[kgf · cm]	29.22	58.40	87.70	116.90	116.90	194.80	292.20	428.70	116.90	194.90	292.30	428.70
Max. Instantaneous	[N · m]	8.59	17.18	25.77	34.22	34.38	57.29	85.94	126.10	34.40	57.30	85.90	126.00
	[kgf · cm]	87.66	175.30	262.90	349.10	350.70	584.40	876.60	1286.00	350.80	584.60	876.90	1286.10
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	106.70	41.13	71.53	117.72	149.40
	[gf · cm×s^2]	5.77	10.39	14.92	19.43	28.53	47.51	75.36	108.90	41.97	72.99	120.12	152.45
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
Speed/Position Detector	Standard(Note1)	Serial Type 19[Bit]											
	Option	X											
Specifications & Features	Structure	Fully closed · Self cooling IP65(excluding the shaft-through section)											
	Rated Time	Continuous											
	Ambient Temp	Operating : 0 ~ 40[℃] Storage : -20 ~ 60[℃]											
	Ambient Humidity	Below 90[%](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]	5.04	6.74	8.48	10.05	12.5	17.4	25.2	33.8	15.4	20.22	28.02	33.45

Note1) L7□A075 Servo Drive is Coming soon.

Speed-Torque Characteristics

Options and Peripherals

Specifications for Options [Parallel Encoder Cable]

Type	Product Type	Model Name(Note1)	Applicable Motor	Specifications
For Signal	Parallel Encoder Cable (Small Capacity)	APCS-E□□□AS	All Models of APM-SA APM-SB APM-SC APM-HB SERIES	 〈Motor Side Connector〉 〈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) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 7P×0.2SQ or 7P×AWG24
For Signal	Parallel Encoder Cable (Middle Capacity)	APCS-E□□□BS	All Models of APM-SE APM-SF APM-SG APM-LF APM-LG APM-HE SERIES	 〈Motor Side Connector〉 〈Driver Side Connector〉 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108B20-29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 7P×0.2SQ or 7P×AWG24

PIN No.	Encoder Signal	PIN No.	Encoder 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	$\overline{U}$		

〈Motor Side Connector〉

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

〈Driver Side Connector〉

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

〈Motor Side Connector〉

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

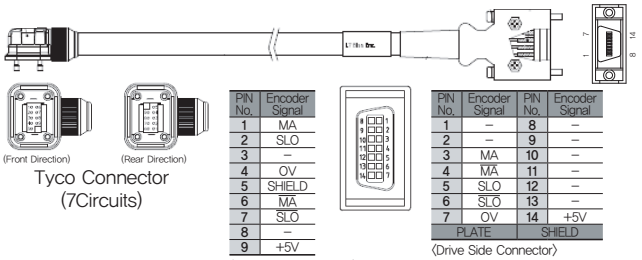
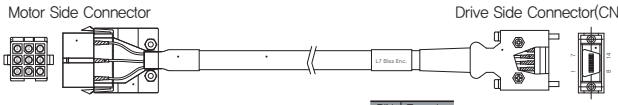
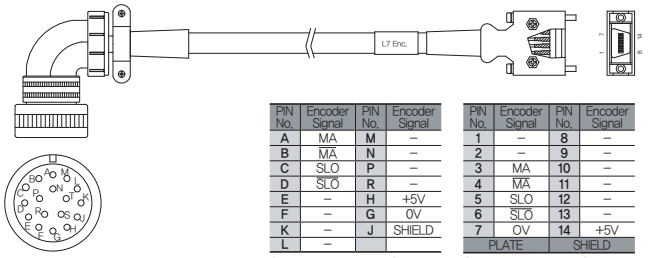
〈Driver Side Connector〉

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

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

Options and Peripherals

Specifications for Options [Serial Encoder Cable]

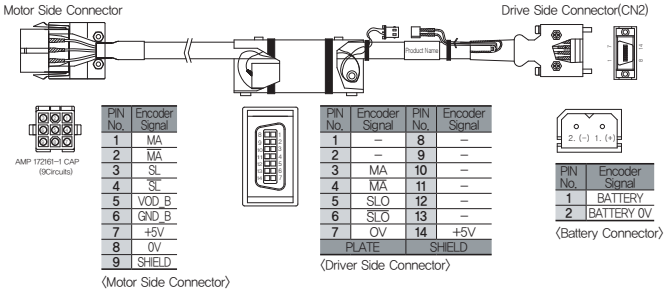
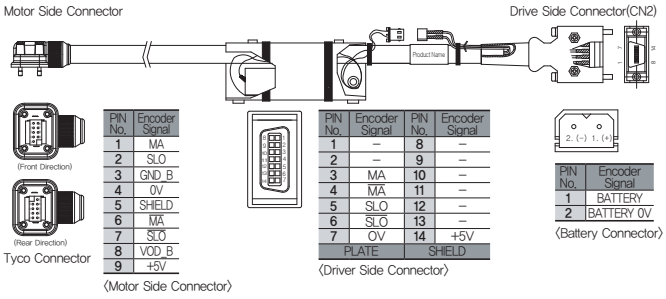
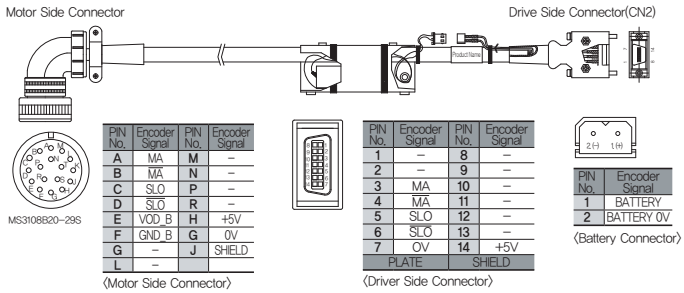
Type	Product Type	Model Name (Note1)	Applicable Motor	Specifications
For Signal	Encoder Cable for Flat Motor (Small Capacity)	APCS–E□□□ES–□ Note)Model name for direction of Connector Front : APCS–E□□□ES Rear : APCS–E□□□ES–R	All Models of APM–FB APM–FC SERIES	Motor Side Connector / Drive Side Connector(CN2)  (Front Direction) (Rear Direction) Tyco Connector (7Circuits) 〈Motor Side Connector〉 〈Drive 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) b. Connector Spec. : 10114–3000VE(3M) 3. Cable Spec. : 3P×0.2SQ or 3P×24AWG
For Signal	Encoder Cable for Serial Type (Small Capacity)	APCS–E□□□CS	All Models of APM–SA APM–SB APM–SC SERIES	Motor Side Connector / Drive Side Connector(CN2)  〈Motor Side Connector〉 〈Drive Side Connector〉 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) b. Connector Spec. : 10114–3000VE(3M) 3. Cable Spec. : 3P×0.2SQ or 3P×24AWG
For Signal	Encoder Cable for Serial Type (Middle Capacity)	APCS–E□□□DS	All Models of APM–SE APM–SF APM–SG APM–LF APM–LG APM–FE APM–FF APM–FG SERIES	Motor Side Connector / Drive Side Connector(CN2)  〈Motor Side Connector〉 〈Drive Side Connector〉 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108B20–29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314–52A0–008(3M) b. Connector Spec. : 10114–3000VE(3M) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG

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

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

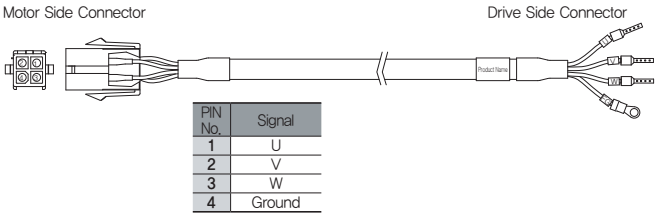
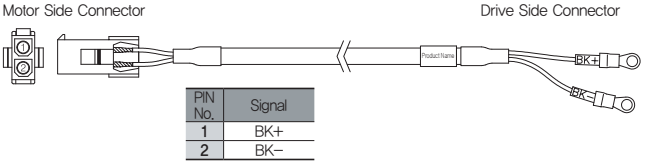
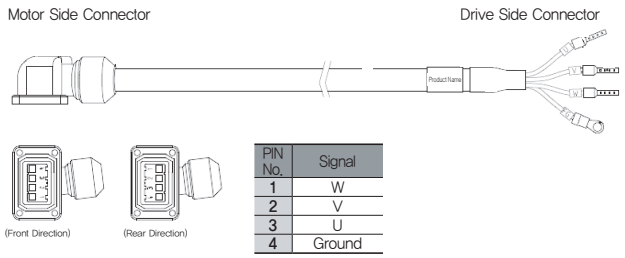
Options and Peripherals

Specifications for Options [Serial Encoder Cable]

Type	Product Type	Model Name(Note1)	Applicable Motor	Specifications
For Signal	Encoder Cable for Multi-turn Serial Type (AMP Type-Small Capacity)	APCS-E□□□CS1	All Models of APM-SA APM-SB APM-SC SERIES	 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) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX)
For Signal	Encoder Cable for Multi-turn Serial Type (Small Capacity)	APCS-E□□□ES1-□ Note)Model name for direction of Connector Front : APCS-E□□□ES1 Rear : APCS-E□□□ES1-R	All Models of APM-FB APM-FC SERIES	 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) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX)
For Signal	Encoder Cable for Multi-turn Serial Type (Middle Capacity)	APCS-E□□□DS1	All Models of APM-SE APM-SF APM-SG APM-LF APM-LG APM-FE APM-FF APM-FG SERIES	 1. Motor Side Connector(MS : Military Standard) a. Plug Spec. : MS3108B20-29S 2. Drive Side Connector(CN2) a. Case Spec. : 10314-52A0-008(3M) b. Connector Spec. : 10114-3000VE(3M) 3. Cable Spec. : 4P×0.2SQ or 4P×24AWG 4. Battery Connector Spec. : 5267-02A(MOLEX)

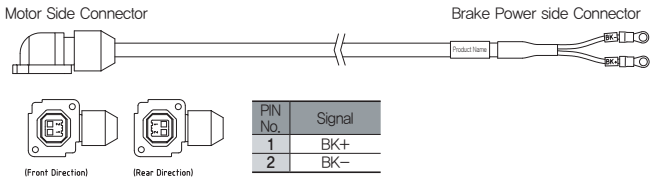
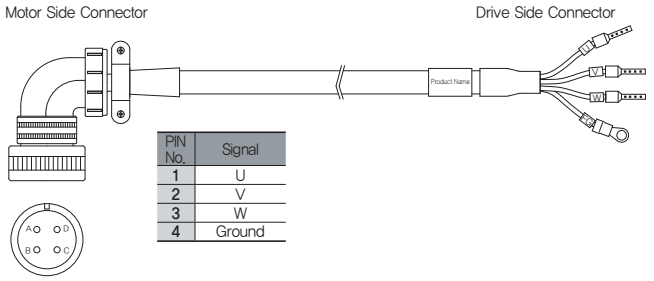
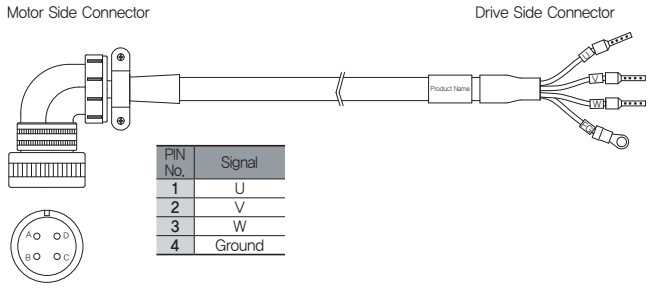
Options and Peripherals

Specifications for Options [Power Cable]

Type	Product Type	Model Name (Note1)	Applicable Motor	Specifications
For Power	Power Cable (Small Capacity)	APCS–P□□□GS	All Models of APM–SA APM–SB APM–SC APM–HB SERIES	 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. : F1512 b. FG Pin Spec. : 1.54x4(Ring Terminal) 3. Cable Spec. : 4C×0.75SQ or 4C×18AWG
For Power	Brake Cable (Small Capacity)	APC–P□□□KB	All Models of APM–SA APM–SB APM–SC SERIES	 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. : 1.5–3(Rling Terminal) 3. Cable Spec. : 2C×0.75SQ or 2C×18AWG
For Power	Power Cable for Flat Motor (Small Capacity)	APCS–P□□□FS–□ Note)Model name for direction of Connector Front : APCS–E□□□ES Rear : APCS–E□□□FS–R	All Models of APM–FB APM–FC SERIES	 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. : F1512 b. FG Pin Spec. : 1.5×4(Ring Terminal) 3. Cable Spec. : 4C×0.75SQ or 4C×18AWG

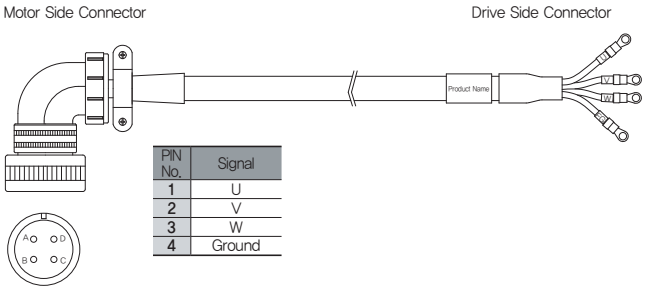
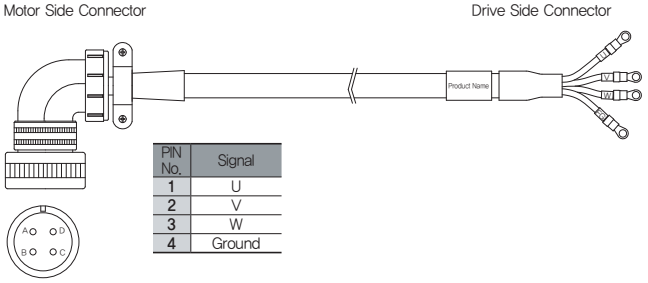
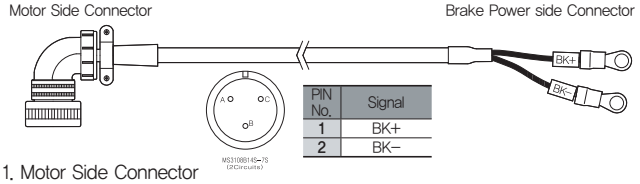
Options and Peripherals

Specifications for Options [Power Cable]

Type	Product Type	Model Name(Note1)	Applicable Motor	Specifications
For Power	Brake Cable for Flat Motor (Small Capacity)	APCS-B□□□QS-□	All Models of APM-FB APM-FC SERIES Note)Model name for direction of Connector Front : APCS-B□□□QS Rear : APCS-B□□□QS-R	 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×0.75SQ or 2C×18AWG
For Power	Power Cable (Middle Capacity)	APCS-P□□□HS	All Models of APM-SE APM-FE APM-HE SERIES	 1. Motor Side Connector a. Plug Spec. : MS3108B20-4S(MS) 2. Drive Side Connector a. U, V, W Pin Spec. : F2512 b. FG Pin Spec. : 2.5×4(Ring Terminal) 3. Cable Spec. : 4C×2.5SQ or 4C×14AWG
For Power	Power Cable (Middle Capacity)	APCS-P□□□IS	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	 1. Motor Side Connector a. Plug Spec. : MS3108B22-22S(MS) 2. Drive Side Connector a. U, V, W Pin Spec. : F2512 b. FG Pin Spec. : 2.5×4(Ring Terminal) 3. Cable Spec. : 4C×2.5SQ or 4C×14AWG

Options and Peripherals

Specifications for Options [Power Cable]

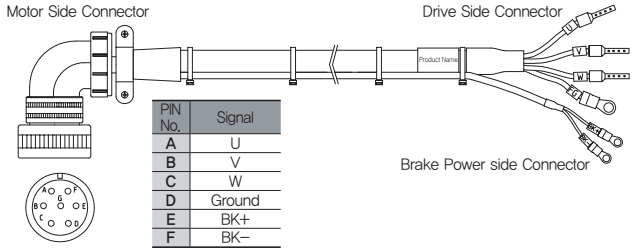
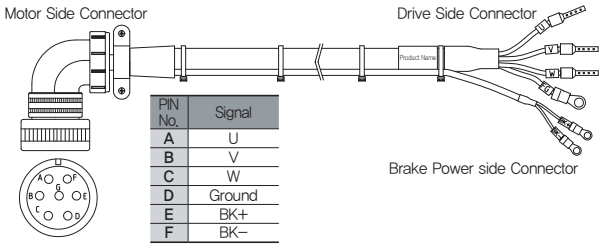
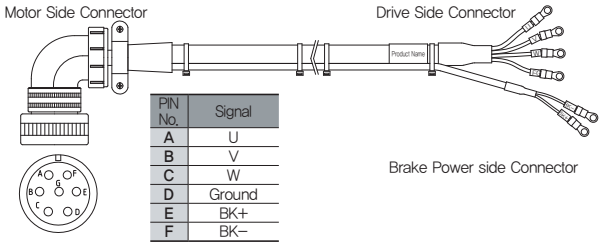
Type	Product Type	Model Name(Note1)	Applicable Motor	Specifications
For Power	Power Cable (Middle Capacity)	APC-P□□□JS	APM-SF50A SF55D, SF75D SF44G, SF60G SF44M, SG55D SG75D, SG44G SG60G, SG44M FF50A, FF50D FF75D, FF44G FF60G, FF44M FG55D, FG75D FG44G, FG60G FG44M	 PIN No. / Signal: 1 U, 2 V, 3 W, 4 Ground 1. Motor Side Connector a. Plug Spec. : MS3108A22-17S(MS) 2. Drive Side Connector a. Connecting terminal Spec. : 6×5(Ring Terminal) 3. Cable Spec. : 4C×5.5SQ or 4C×10AWG
For Power	Power Cable (Middle Capacity)	APC-P□□□MS	APM-SG60M SF75G, FF75G	 PIN No. / Signal: 1 U, 2 V, 3 W, 4 Ground 1. Motor Side Connector a. Plug Spec. : MS3108A22-17S(MS) 2. Drive Side Connector a. Connecting terminal Spec. : 10×8(Ring Terminal) 3. Cable Spec. : 4C×8.0SQ or 4C×8AWG
For Power	Power Cable (Brake Type)	APC-P□□□SB	All Models of APM-SG APM-LG APM-FG SERIES	 PIN No. / Signal: 1 BK+, 2 BK- 1. Motor Side Connector a. PLUG Spec. : MS3108B 14S-7S(MS) 2. Drive Side Connector a. Connecting terminal Spec. : 1.5×3(Ring Terminal) 3. Cable Spec. : 2C×0.75SQ or 2C×19AWG

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

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

Options and Peripherals

Specifications for Options [Pareller Encoder Cable]

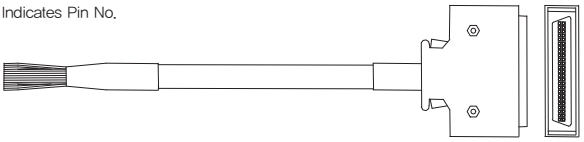
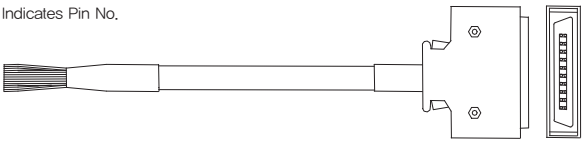
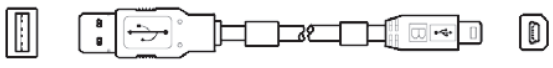
Type	Product Type	Model Name(Note1)	Applicable Motor	Specifications
For Power	Power Cable (Brake Type)	APCS–P□□□NB	All Models of APM–SE APM–FE SERIES	 1. Motor Side Connector a. Plug Spec. : MS3108B20–15S(MS) 2. Drive Side Connector a. U, V, W Pin Spec. : F2012 b. Cable Spec. : 4C×2.5SQ or 4C×14AWG c. 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
For Power	Power Cable (Brake Type)	APCS–P□□□PB	APM–SF30A SF22D, LF35D SF20G, LF30G SF12M, SF20M LF30M, FF30A FF22D, FF35D FF20G, FF30G FF12M, FF20M FF30M	 1. Motor Side Connector a. PLUG Spec. : MS3108B24–10S(MS) 2. Drive Side Connector a. U, V, W Pin Spec. : F2512 b. Cable Spec. : 4C×2.5SQ or 4C×2.5AWG 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
For Power	Power Cable (Brake Type)	APC–P□□□LB	APM–SF50A SF55D, SF75D SF44G, SF60G SF44M, FF50A FF50D, FF75D FF44G, FF60G FF40M	 1. Motor Side Connector a. PLUG Spec. : MS3108A24–10S(MS) 2. Drive Side Connector a. Connecting terminal Spec. : 5.5×5(KEP GP110028) b. 4CX5.5SQ or 4CX10AWG 3. Brake Power side Connector a. Connecting terminal Spec. : 1.25×3(Ring Terminal) b. Cable Spec. : 2C×0.75SQ or 2C×8AWG

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

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

Options and Peripherals

Specifications for Options [Signal Cable]

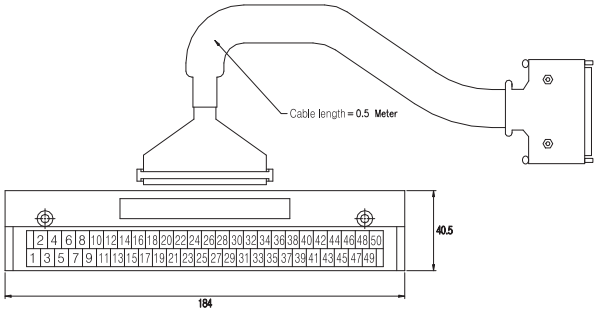
<table>
<tr><th>Type</th><th>Product Type</th><th>Model Name(Note1)</th><th>Applicable Drive</th><th>Specifications</th></tr>
<tr><td rowspan="2">For Signal</td><td>CN1 Cable</td><td>APC-CN1□□A</td><td>L7S SERIES</td><td rowspan="2">[Upper Controller] [Drive Side Connector CN1]
Indicates Pin No.
 
1. Drive Side Connector(CN1)
a. Case Spec. : 10350-52A0-008(3M)
b. Connector Spec. : 10150-3000VE(3M)
c. Cable Spec. : 20276-SB 25P(AWG28)</td></tr>
<tr><td colspan="3">〈Pin No. Display〉
<table>
<tr><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th></tr>
<tr><td>1</td><td>TRQCOM</td><td>11</td><td>PR+</td><td>21</td><td>SPD3</td><td>31</td><td>/BO</td><td>41</td><td>RDY-</td></tr>
<tr><td>2</td><td>REFCOM</td><td>12</td><td>PR-</td><td>22</td><td>SPD2</td><td>32</td><td>AO</td><td>42</td><td>TLOUT</td></tr>
<tr><td>3</td><td>PZO</td><td>13</td><td>PCON</td><td>23</td><td>SPD1</td><td>33</td><td>/AO</td><td>43</td><td>ZSPD</td></tr>
<tr><td>4</td><td>ZO</td><td>14</td><td>GAIN2(SEN)</td><td>24</td><td>GND</td><td>34</td><td>+15V</td><td>44</td><td>BRAKE</td></tr>
<tr><td>5</td><td>/ZO</td><td>15</td><td>PCLEAR</td><td>25</td><td>GND</td><td>35</td><td>-15V</td><td>45</td><td>INSPD/INPOS</td></tr>
<tr><td>6</td><td>SRO</td><td>16</td><td>TLIMIT</td><td>26</td><td>SETCOM</td><td>36</td><td>GND</td><td>46</td><td>DIR</td></tr>
<tr><td>7</td><td>/SRO</td><td>17</td><td>ALMRST</td><td>27</td><td>SPDCOM</td><td>37</td><td>GNDA</td><td>47</td><td>SVON</td></tr>
<tr><td>8</td><td>GNDA</td><td>18</td><td>EMG</td><td>28</td><td>MONIT1</td><td>38</td><td>ALARM+</td><td>48</td><td>STOP</td></tr>
<tr><td>9</td><td>RF+</td><td>19</td><td>CWLIM</td><td>29</td><td>MONIT2</td><td>39</td><td>ALARM-</td><td>49</td><td>PULCOM</td></tr>
<tr><td>10</td><td>PF-</td><td>20</td><td>CCWLIM</td><td>30</td><td>BO</td><td>40</td><td>RDY+</td><td>50</td><td>+24Vin</td></tr>
</table></td></tr>
<tr><td rowspan="2">For Signal</td><td>CN1 Cable</td><td>APCS-CN1□□A</td><td>L7N SERIES</td><td rowspan="2">[Upper Controller] [Drive Side Connector CN1]
Indicates Pin No.
 
1. Drive Side Connector(CN1)
a. Case Spec. : 10320-52A0-008(3M)
b. Connector Spec. : 10120-3000VE(3M)
c. Cable Spec. : ROW-SB0.1Cx20C(AWG28)</td></tr>
<tr><td colspan="3">〈Pin No. Display〉
<table>
<tr><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th></tr>
<tr><td>1</td><td>BRAKE+</td><td>6</td><td>24V</td><td>11</td><td>HOME</td><td>16</td><td>Spare Pin</td></tr>
<tr><td>2</td><td>BRAKE-</td><td>7</td><td>CWL</td><td>12</td><td>ALMRST</td><td>17</td><td>RDY+</td></tr>
<tr><td>3</td><td>ALARM+</td><td>8</td><td>CCWL</td><td>13</td><td>DI1</td><td>18</td><td>RDY-</td></tr>
<tr><td>4</td><td>ALARM-</td><td>9</td><td>PROBE1</td><td>14</td><td>DI2</td><td>19</td><td>DO1+</td></tr>
<tr><td>5</td><td>Spare Pin</td><td>10</td><td>PROBE2</td><td>15</td><td>Spare Pin</td><td>20</td><td>DO1-</td></tr>
</table></td></tr>
<tr><td>For Signal</td><td>Communication Cable</td><td>APCS-CN5L7U</td><td>All Models of L7 SERIES</td><td>[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.</td></tr>
</table>

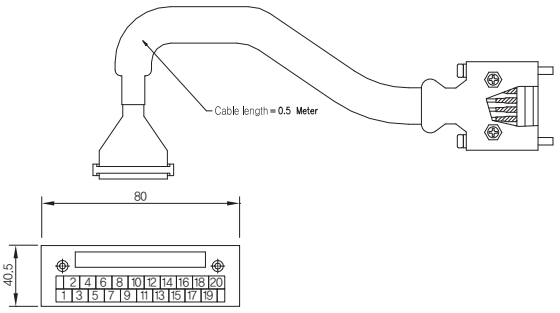
Note1) □□ of Model Name indicates the kind and length of cable. And the declaration is as below.

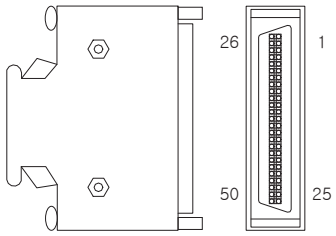
Cable Length(m)	1	2	3	5
Declaration	01	02	03	05

Options and Peripherals

Specifications for Options [Connector]

<table>
<tr><th>Type</th><th>Product Type</th><th>Model Name(Note1)</th><th>Applicable Drive</th><th>Specifications</th></tr>
<tr><td rowspan="3">T/B</td><td>CN1
T/B</td><td>APC–
VSCN1T
–□□</td><td>L7S SERIES</td><td rowspan="2"> 

1. Extended CN1 T/B for VS/L7S
2. Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m], 3[m]</td></tr>
<tr><td colspan="4">〈Pin No. Display〉
<table>
<tr><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th><th>CN1</th><th>I/O Signal</th></tr>
<tr><td>1</td><td>TRQCOM</td><td>11</td><td>PR+</td><td>21</td><td>SPD3</td><td>31</td><td>/BO</td><td>41</td><td>RDY–</td></tr>
<tr><td>2</td><td>REFCOM</td><td>12</td><td>PR–</td><td>22</td><td>SPD2</td><td>32</td><td>AO</td><td>42</td><td>TLOUT</td></tr>
<tr><td>3</td><td>PZO</td><td>13</td><td>PCON</td><td>23</td><td>SPD1</td><td>33</td><td>/AO</td><td>43</td><td>ZSPD</td></tr>
<tr><td>4</td><td>ZO</td><td>14</td><td>GAIN2(SEN)</td><td>24</td><td>GND</td><td>34</td><td>+15V</td><td>44</td><td>BRAKE</td></tr>
<tr><td>5</td><td>/ZO</td><td>15</td><td>PCLEAR</td><td>25</td><td>GND</td><td>35</td><td>–15V</td><td>45</td><td>INSPD/INPOS</td></tr>
<tr><td>6</td><td>SRO</td><td>16</td><td>TLIMIT</td><td>26</td><td>SETCOM</td><td>36</td><td>GND</td><td>46</td><td>DIR</td></tr>
<tr><td>7</td><td>/SRO</td><td>17</td><td>ALMRST</td><td>27</td><td>SPDCOM</td><td>37</td><td>GNDA</td><td>47</td><td>SVON</td></tr>
<tr><td>8</td><td>GNDA</td><td>18</td><td>EMG</td><td>28</td><td>MONIT1</td><td>38</td><td>ALARM+</td><td>48</td><td>STOP</td></tr>
<tr><td>9</td><td>RF+</td><td>19</td><td>CWLIM</td><td>29</td><td>MONIT2</td><td>39</td><td>ALARM–</td><td>49</td><td>PULCOM</td></tr>
<tr><td>10</td><td>PF–</td><td>20</td><td>CCWLIM</td><td>30</td><td>BO</td><td>40</td><td>RDY+</td><td>50</td><td>+24Vin</td></tr>
</table></td></tr>
<tr><td>CN1
T/B</td><td>APCS–
L7NCN1T
–□□</td><td>L7N SERIES</td><td rowspan="2"> 

1. Extended CN1 T/B for L7N
2. Available Cable Length : 0.5[m], 1[m], 1.5[m], 2[m]</td></tr>
<tr><td colspan="4">〈Pin No. Display〉
<table>
<tr><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th><th>NO</th><th>Signal</th></tr>
<tr><td>1</td><td>BRAKE+</td><td>6</td><td>24V</td><td>11</td><td>HOME</td><td>16</td><td>Spare Pin</td></tr>
<tr><td>2</td><td>BRAKE–</td><td>7</td><td>CWL</td><td>12</td><td>ALMRST</td><td>17</td><td>RDY+</td></tr>
<tr><td>3</td><td>ALARM+</td><td>8</td><td>CCWL</td><td>13</td><td>DI1</td><td>18</td><td>RDY–</td></tr>
<tr><td>4</td><td>ALARM–</td><td>9</td><td>PROBE1</td><td>14</td><td>DI2</td><td>19</td><td>DO1+</td></tr>
<tr><td>5</td><td>Spare Pin</td><td>10</td><td>PROBE2</td><td>15</td><td>Spare Pin</td><td>20</td><td>DO1–</td></tr>
</table></td></tr>
<tr><td>CN</td><td>CN1
Connector</td><td>APC–
CN1NNA</td><td>L7S SERIES</td><td> 

1. Case Spec. : 10350–52A0–008(3M)
2. Connector Spec. : 10150–3000VE(3M)</td></tr>
</table>

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

＊APC–VSCN1T

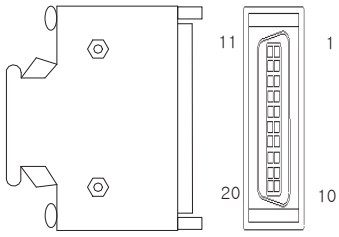
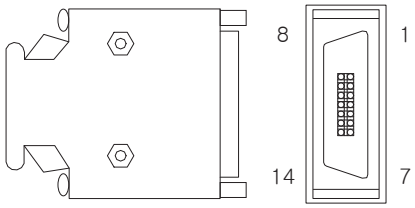
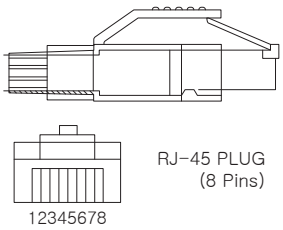
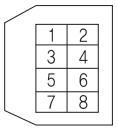
Cable Length(m)	0.5	1	1.5	2	3
Declaration	None	03	04	01	02

＊APCS–L7NCN1T

Cable Length(m)	0.5	1	1.5	2
Declaration	01	02	03	04

Options and Peripherals

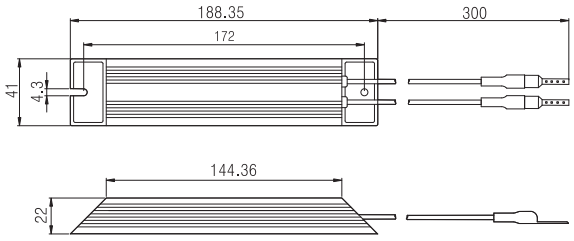
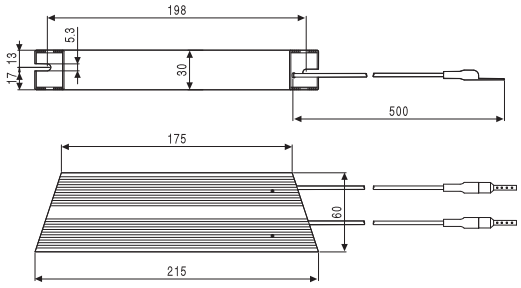
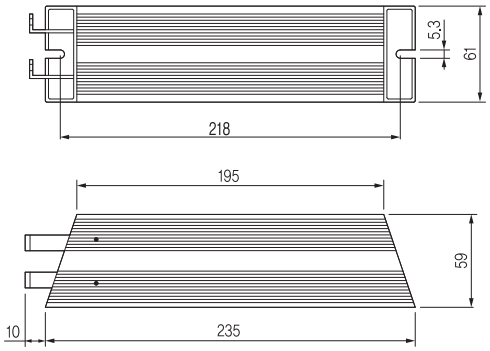
Specifications for Options [Connector]

Type	Product Type	Model Name	Applicable Drive	Specifications
CN	CN1 Connector	APC-CN2NNA	L7N SERIES	 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	L7N SERIES	 RJ-45 PLUG (8 Pins) 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 Rreen 7 TX/RX3 Plus White/Brown 8 TX/RX3 Minus Brown Plate SHILDE **Note)** EtherCAT use only 4wires(1, 2, 3, 6)
CN	CN6 Connector	APCS-CN6J	L7N SERIES	  1. Spec. : 2040008-1(TE) 2. How to use when STO is not needed. 1 — 4 connection 2 — 5 connection 3 — 6 connection PIN No. / I/O Signal 1 NC 2 NC 3 HWBB1- 4 HWBB1+ 5 HWBB2- 6 HWBB2+ 7 EDM+ 8 EDM-

Options and Peripherals

Specifications for Options [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	L7□A001□ L7□A002□ L7□A004□	 IRH 140W 50ohm
Resistor	Braking Resistor	APCS-300R30	L7□A008□ L7□A010□	 IRV 300W 30ohm
Resistor	Braking Resistor	APC-600R30	L7□A020□ L7□A035□	
		APC-600R28	L7□A050□ (4P)	IRV 600S 30ohm * L7□A020□ – 2pcs (Parallel Connection) L7□A030□ – 3pcs (Parallel Connection) IRV 600S 28ohm * L7□A050□ – 4pcs (Parallel Connection) **Note)** IRV 600S 30ohm and 600S 28ohm have the same external dimensions.

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.

MEMO