

Wide range of Motor

- ▶ 30W(Flange : 40) ~ 37KW(Flange : 280) VS series
- ▶ Hollow shaft Motor(∅40 ~ ∅130mm Flange)available

Precise control

- ▶ Full Closed control through Dual Encoder Port
- ▶ High performance motor by Neodymium magnet and Split Core

High performance

- ▶ Auto tuning
- ▶ Overshoot suppression(P-PI control)
- ▶ Fast Positioning time through Feed-forward compensation function
- ▶ Anti-vibration at stop

Easy & Convenience

- ▶ Built-in communication(RS-422)
- ▶ Parameter download/upload and monitor through PC Loader

Application

- ▶ All FA Machine
- ▶ Semiconductor Machine
- ▶ Injection Molding Machine
- ▶ Servo Press Machine
- ▶ Machine Tools
- ▶ Textile Machine
- ▶ Steel Processing Machine



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AC SERVO SYSTEM

Feature >>

>>> AC Servo Motor

30W~37kW Servo Motor & Drive released

- Provide a wide range of selection with various series
- 40 Flange 30W ~ 280 Flange 37kW
- Adopted core-dividing type by using the most advanced tooling technology
- Realized high efficiency & compact size by adopting high precision winding
- Motor's life extended by the use of F-class insulation against B-class temperature rise
- Suitable for high precision control thanks to the high-precision fabricating technology & quality control
- High torque output is possible at a smaller size by adopting neodymium permanent magnet of highest-performance in its class
- Provide exclusive models with various structures & characteristics

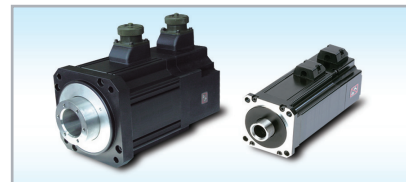
Spinner Motor

- Spinner Motor for semi-conductor equipment 8" & 12" developed
- Used at Coater, Developer & Scrubber
- Realized high instantaneous acceleration characteristic-higher than 100,000 rps
- Manufactured custom made-spinner motor in response to customer's demands
- Secured various diameters of hollow shaft as per customer's requirement
- Environment-resistance strengthened by adopting magnetic fluid seal
- Anti-corrosion strengthened by the special coating process on the surface



Hollow Shaft Motor

- Provide various diameters of hollow shaft (Max.Ø40-Ø130mm Flange)
- Realized a compact size by the use of high-performance permanent magnet
- Compact design by adopting an exclusive encoder
- Motor's life extended by the use of F-class insulation against B-class temperature rise
- Designing various shapes of Exclusive Motor(customized type) is provided for customer's requirement



>>> AC Servo Drive

The Rated Specifications of Standard Servo Drive

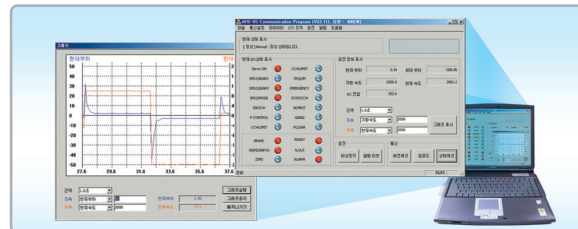
- High-efficiency power transformation technologies realized by developing dedicated ASIC featuring latest control theory.
- Diversified functions added and convenience of use strengthened by the use of large-capacity flash memory.
- Precision control realized by the application of high-performance control algorithm.
- Additional services provided through various kinds of communication options. (PC Communication, Touch Screen, High-order Network Communication)
- Loader(6 digits) is basically mounted for the convenience of use
- Various menu function that is applied instantly after changing.

>>> PC Loader

PC communication software also provides the graphic function in which the operation by using a computer. Reading/writing the menu data and displaying speed & torque information are all possible

Characteristics

- Display the current status information (Motor Speed, Load Rate, I/O contacts status, etc.)
- Saving the menu data & download function.
- Display the motor speed & torque with a graph.
- Display function of Alarm status • Easy changing of mode & menu data.
- Operation handling function by using communication protocol
- Data editing function by using communication-code
- PC Specifications : Window 98, WindowXP • Auto Jog operation test function



>>> Optimum operating environment by various functions and precise control

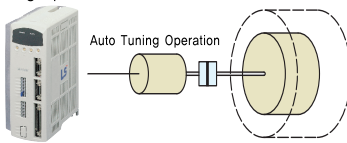
Built-In Loader Installation

Loader indicating 7 segments of 6 digits is installed for user's convenience.



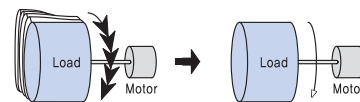
Auto Tuning Operation

Load inertia, speed gain and integral time constant are set up automatically by auto tuning operation.



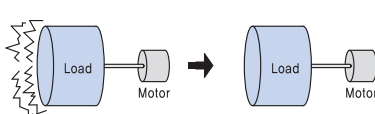
Anti-vibration during Operation

When noise is occurred by the vibration of shaft during operation, the noise can be reduced by setting the filter of speed control part.



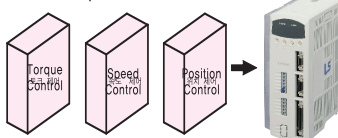
Anti-vibration at Stop

At motor's stop, it prevents the noise caused produced by vibration and the damage of machine.



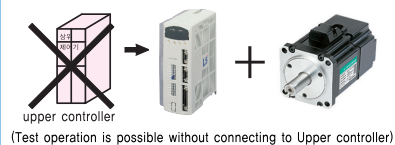
Position, Speed, Torque are All in One.

With a unit, individual control and switching operation for torque, speed and position are possible.



Test Operation

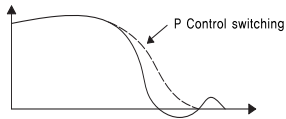
By Servo only, test operation is possible without upper controller.



Enhanced System stability and responsibility through the reinforced high performance

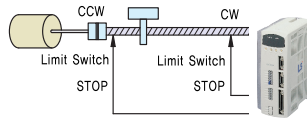
Anti-Overshoot

By switching PI control and P control in order to improve the transitional characteristic at acceleration/deceleration, it is possible to control the overshoot and undershoot.



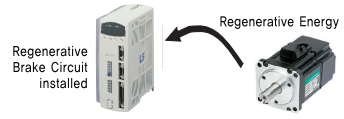
Preventing Over-Trouble

If the moving part of motor outruns the movable area, it prevents the machine from damaging by stopping the rotation of motor.



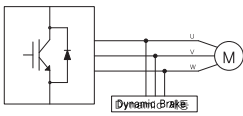
Built-in Regenerative Brake Function

Stable decelerating operation is possible by consuming the regenerative energy that is produced during motor deceleration through the regenerative circuit.



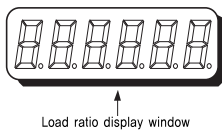
Built-in Dynamic Brake

At a sudden electricity failure or emergency stop, sudden braking operation is possible by consuming the generating energy of motor to prevent the machine from damaging.



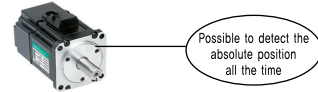
Various Load Ratio Display Function

Display the current load ratio, instantaneous maximum load ratio and the average load ratio for 5 seconds during servo operation.



Applying an Absolute Encoder

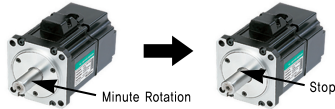
Using an absolute encoder, the current position is always recognized even at an electricity failure, and the returning operation to the starting point is not necessary. And at power ON, the immediate operation is possible.



Convenient User oriented design

Zero Clamp Function

Motor might be rotated by the minute noise voltage even at 0[V] of analog command voltage. This function prevents it and stops the motor.



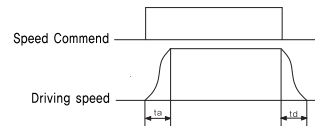
Selecting Various Speed

Analog command and 7 internal speed commands could be selected by external contact.

	SPD3	SPD2	SPD1
AnalogSpeed	off	off	off
Internal Speed 1	off	off	on
Internal Speed 2	off	on	off
Internal Speed 3	off	on	on
Internal Speed 4	on	off	off
Internal Speed 5	on	off	on
Internal Speed 6	on	on	off
Internal Speed 7	on	on	on

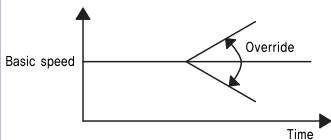
Smooth Acceleration/Deceleration Operation

Can select Linear acceleration/deceleration and S-shape acceleration/deceleration operation with 0~100[second].



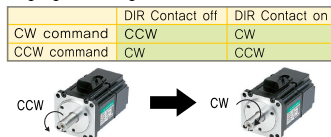
Speed Override Operation

The speed by analog voltage command could be piled up on the basic setting speed.



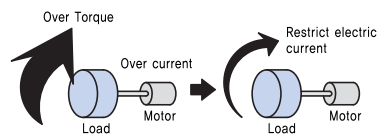
Switching Function of the Rotating Direction

Switching the rotating direction by external contact could be possible without any changing of wiring of motor or encoder.



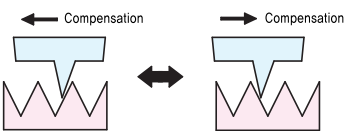
Torque Limit Function

Restrict excessive torque by control maximum electric current of motor. It prevents mechanical damage of motor.



Backlash Compensation

Compensate the repeatedly swerved position that is caused by backlash of mechanical part at forward/reverse operation.



Various Positon Command Pulse

Various command pulse could be applicable

Pulse	negative logic		positive logic	
	CW	CCW	CW	CCW
A+B phase	PF	PR	PF	PR
Forward/Reverse	PF	PR	PF	PR
Pulse+Dir	PF	PR	PF	PR

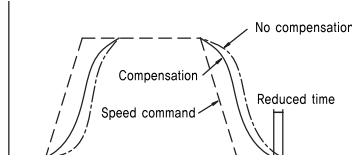
Selecting Electronic Gear Ratio & Offset Function

Can select 4 of electronic gear ratios with the input contact. And Minute Offset can also be controlled.

	EGEAR2	EGEAR1
Electronic gear ratio1	off	off
Electronic gear ratio2	off	on
Electronic gear ratio3	on	off
Electronic gear ratio4	on	on

Feed-Forward Compensation

By selecting the feed-forward compensation, the position decision time can be reduced.



The Origin Point Searching Function

It is possible to stop at origin (Z phase) within a rotation of motor. It is used at combining shaft of motor with machine.



Speed Limit Function at Torque's Operation

4 of speed limit setting is possible at torque control operation.

	SPD2	SPD1
Analog Speed	off	off
Internal Speed 1	off	on
Internal Speed 2	on	off
Internal Speed 3	on	on

AC SERVO SYSTEM

Servo Motor and Drive designations

Servo Motor

Encoder and Servo Motor Provide the Optimized Servo System for Customer needs with various Design and Characteristics

APM-S B 04 A D K 1 G2 3

Motor Shaft S : Solid Shaft H : Hollow Shaft	Flange Size R3 : 30W R5 : 50W 01 : 100W 02 : 200W 04 : 400W 05 : 450W 06 : 550W/600W 07 : 650W 08 : 750W/800W 09 : 850W/900W 10 : 1,000W . 110 : 11,000W 150 : 15,000W 220 : 22,000W 300 : 30,000W 370 : 37,000W	Encoder Type (Note1) A : Inc. 1,024 P/R(15 Lines) B : Inc. 2,000 P/R(15 Lines) C : Inc. 2,048 P/R(15 Lines) D : Inc. 2,500 P/R(15 Lines) E : Inc. 3,000 P/R(15 Lines) F : Inc. 5,000 P/R(15 Lines) G : Inc. 6,000 P/R(15 Lines) K : Abs.2,048 P/R S : Inc. 2,000 P/R(9 Lines) T : Inc. 2,048 P/R(9 Lines) U : Inc. 2,500 P/R(9 Lines) V : Inc. 3,000 P/R(9 Lines)	Existence of Oil Seal, Brake (Note2) None : None 1 : Oil Seal Attached 2 : Brake Attached(DC 24[V]) 3 : Oil Seal, Brake Attached(DC 24[V])	Reduction ratio 3 : 1/3 10 : 1/10 . .
Flange Size A : 40 Flange B : 60 Flange C : 80 Flange E : 130 Flange F : 180 Flange G : 220 Flange H : 250 Flange J : 280 Flange	Rated Rotation Speed A : 3000 rpm D : 2000 rpm G : 1500 rpm M : 1000 rpm	Shape of Shaft N : Straight K : One Side Round Key (Standard) L : L Cut D : D Cut T : Taper Shape R : Both Sides Round Key H : Hollow Shaft	Speed Reducer (Gearbox) None : No Reducer G2 : For General Industry (Flange Mount) G3 : Precision Gearbox (Flange Mount)	

Note1) Standard. Encoder type for Motor Inc. 3,000P/R(15 Lines)
 [40 Flange : Inc. 2,048 P/R(15Lines)
 60, 80 Flange : Inc. 2,500P/R(15Lines)
 130, 180, 220, 250, 280 Flange : Inc. 3,000P/R(15Lines)

Note2) Brake Power Supply
 [40,60,80,130,180 Flange : DC 24[V]
 220 Flange : DC 90[V]

Note3) SA,SB,SC,SE Models : Approved by UL
Note4) Gearheaded Motor : Contact to LS Mecapion

Servo Drive

Provide The Optimized Control System with 32bit High-Performance DSP and Various Interface Communication for Multi-Function control parts and High Credibility and Self-Protective Function for IPM Power Module

APD-VS 04 N A4

Type Classification VS : Standard VP : Controller - embedded	Drive Capacity R5 : 50W 01 : 100W 02 : 200W 04 : 400W 05 : 500W 10 : 1KW 15 : 1.5KW 20 : 2KW 35 : 3.5KW 50 : 5KW 75 : 7.5KW 110 : 11KW 150 : 15KW 220 : 22KW 300 : 30KW 370 : 37KW	Encoder Type N : Incremental A : Absolute	Exclusive Code VS Exclusive Option Code AS per the operating software 1. Linear coordinates position drive 2. Rotary coordinates position drive VP 3. Feeder and sensor-input position type 5. Program operation drive
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Note1) VS Drive : 50W~37KW
 VP Drive : 50W~15KW
 VN Drive : 100W~1.5KW

Servo Motor and Drive combination

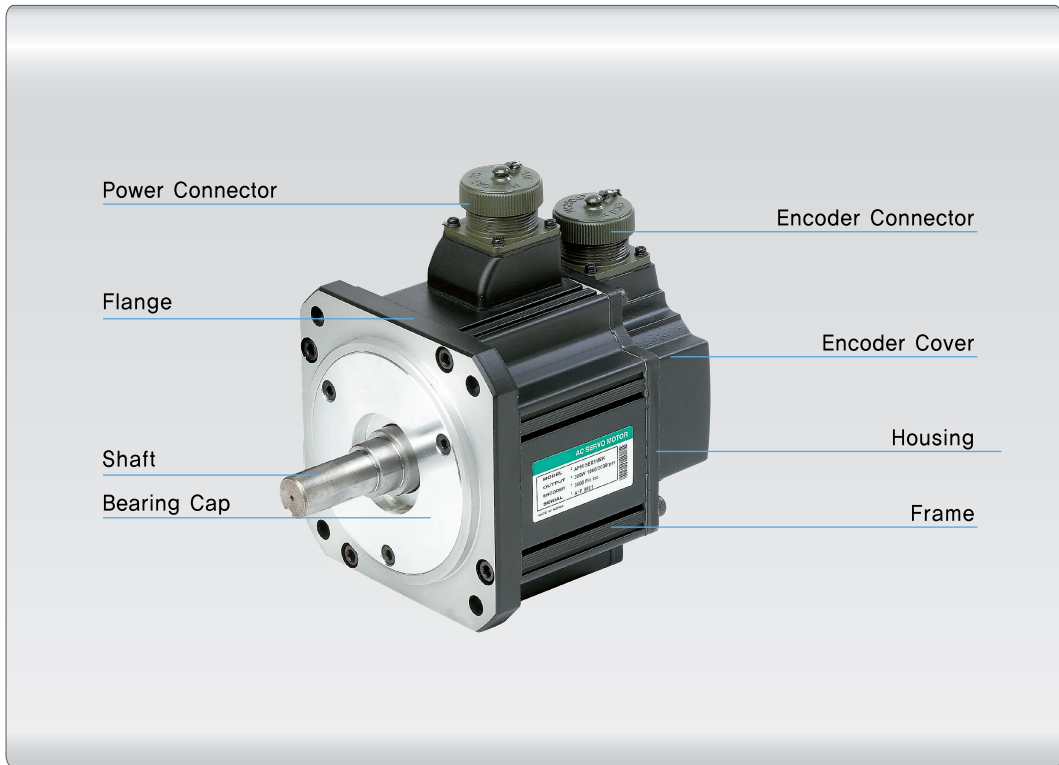
		Servo Motor			Applicable drive	Encoder		IP grade					
Rated Speed (r/min)	Maximum Speed (r/min)	Flange	Capacity (kW)	Model (APM-)	Model (APD-)	Incremental	Absolute						
3,000	5,000	□40	0.03	SAR3A	VSR5	·15pin type ·2048 P/R	·N/A	IP 55					
			0.05	SAR5A	VSR5								
			0.1	SA01A	VS01								
			0.15	SA015A	VS02								
		□60	0.1	SB01A	VS01	·15pin type ·2,500 P/R	·15pin type ·2,048 P/R ·11/13bit		IP 65				
			0.2	SB02A	VS02								
			0.4	SB04A	VS04								
			0.4	SC04A	VS04								
		□80	0.6	SC06A	VS04	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit		IP 65				
			0.8	SC08A	VS05								
			1.0	SC10A	VS10								
			0.9	SE09A	VS10								
		□130	1.5	SE15A	VS15	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit		IP 65				
			2.2	SE22A	VS20								
			3.0	SE30A	VS35								
			3.0	SF30A	VS35								
□180	5.0	SF50A	VS50	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65							
	0.3	SC03D	VS04										
	0.45	SC05D	VS04										
	0.55	SC06D	VS05										
2,000	3,000	□80	0.65	SC07D	VS05	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65					
			0.6	SE06D	VS05								
			1.1	SE11D	VS10								
			1.6	SE16D	VS15								
		□130	2.2	SE22D	VS20								
			2.2	SF22D	VS20								
			3.5	SF35D	VS35								
			5.5	SF55D	VS50								
	2,500	□180	7.5	SF75D	VS75	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65					
			2.2	SG22D	VS20								
			3.5	SG35D	VS35								
			5.5	SG55D	VS50								
		□220	7.5	SG75D	VS75								
			11.0	SG110D	VS110								
			0.45	SE05G	VS05								
			0.85	SE09G	VS10								
1,500	3,000	□130	1.3	SE13G	VS15	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65					
			1.7	SE17G	VS20								
			1.8	SF20G	VS20								
			2.9	SF30G	VS35								
		□180	4.4	SF44G	VS50								
			6.0	SF60G	VS75								
			7.5	SF75G	VS110								
			2.0	SG20G	VS20								
	2,500	□220	3.0	SG30G	VS35	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65					
			4.4	SG44G	VS50								
			6.0	SG60G	VS75								
			8.5	SG85G	VS110								
		2,000	□220	11.0	SG110G				VS150	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65	
				15.0	SG150G				VS150				
				22.0	SH220G				VS220				
				30.0	SH300G				VS300				
□280	37.0		SJ370G	VS370	·N/A	·N/A	IP 55						
	0.3		SE03M	VS04									
	0.6		SE06M	VS05									
	0.9		SE09M	VS10									
1,000	2,000	□130	1.2	SE12M	VS15	·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65					
			1.2	SF12M	VS15								
			2.0	SF20M	VS20								
			3.0	SF30M	VS35								
		□180	4.4	SF44M	VS50				·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65		
			1.2	SG12M	VS15								
			2.0	SG20M	VS20								
			3.0	SG30M	VS35								
		□220	4.4	SG44M	VS50				·15pin type ·3,000 P/R	·15pin type ·2,048 P/R ·11/13bit	IP 65		
			6.0	SG60M	VS75								
			0.1	HB01A	VS01								
			0.2	HB02A	VS02								
		3,000	5,000	□60	0.4				HB04A	VS04	·15pin type ·1,024 P/R	·N/A	IP 55
					0.9				HE09A	VS10			
					1.5				HE15A	VS15			
				□130	3.0				HE30A	VS35			

Note1) IP grade of Servo Motor excludes the shaft section.

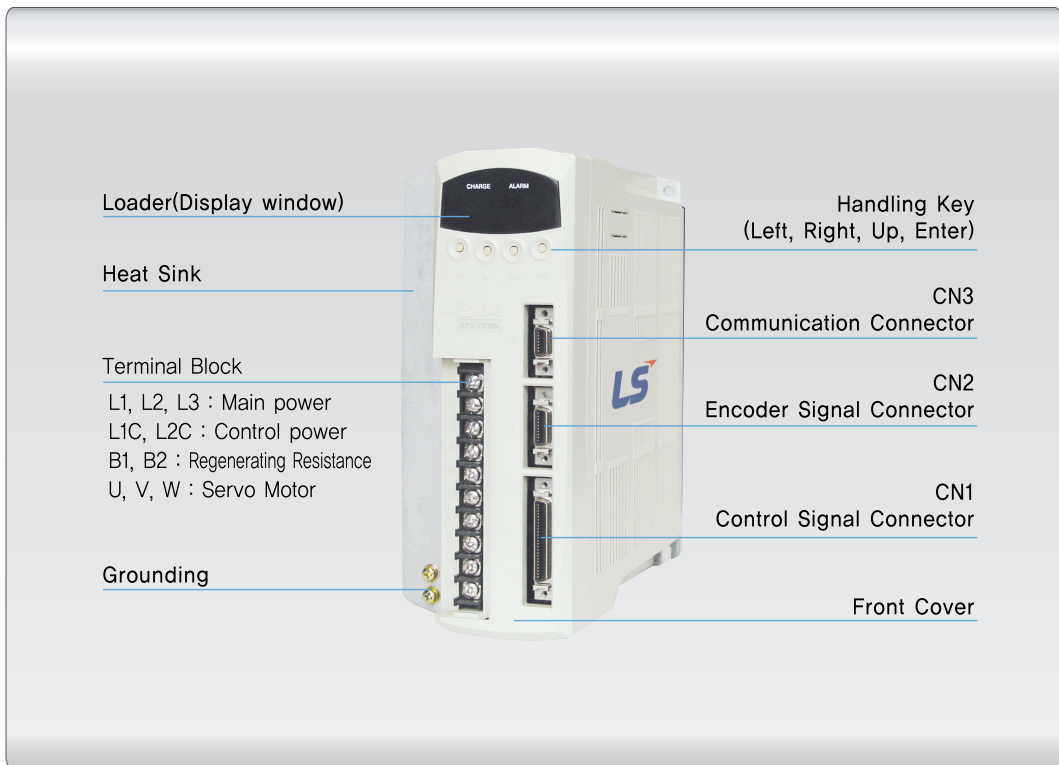


Part names

Motor

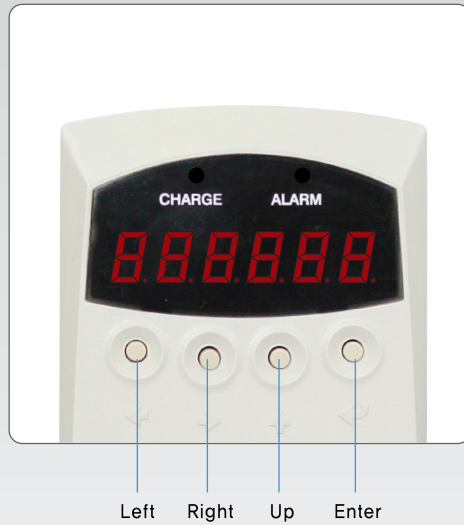






Drive



PC Loader, Handy Loader

▶ Built-in Loader Designation and Handling key function



- 
Left
 - ① Menu display window : decreases menu number
 - ② Data display window : shifts the row to the left
- 
Right
 - ① Menu display window : increases menu number
 - ② Data display window : shifts the row to the right
- 
Up
 - ① Menu display window : increases menu group number
 - ② Data display window : increases the current low number
- 
Enter
 - ① Menu display window : converts to the data display window
 - ② Data display window : saves the current data

▶ PC Loader Handy Loader

PC software provides the graphic function to read, write and display the data such as Menu, Speed and Torque information



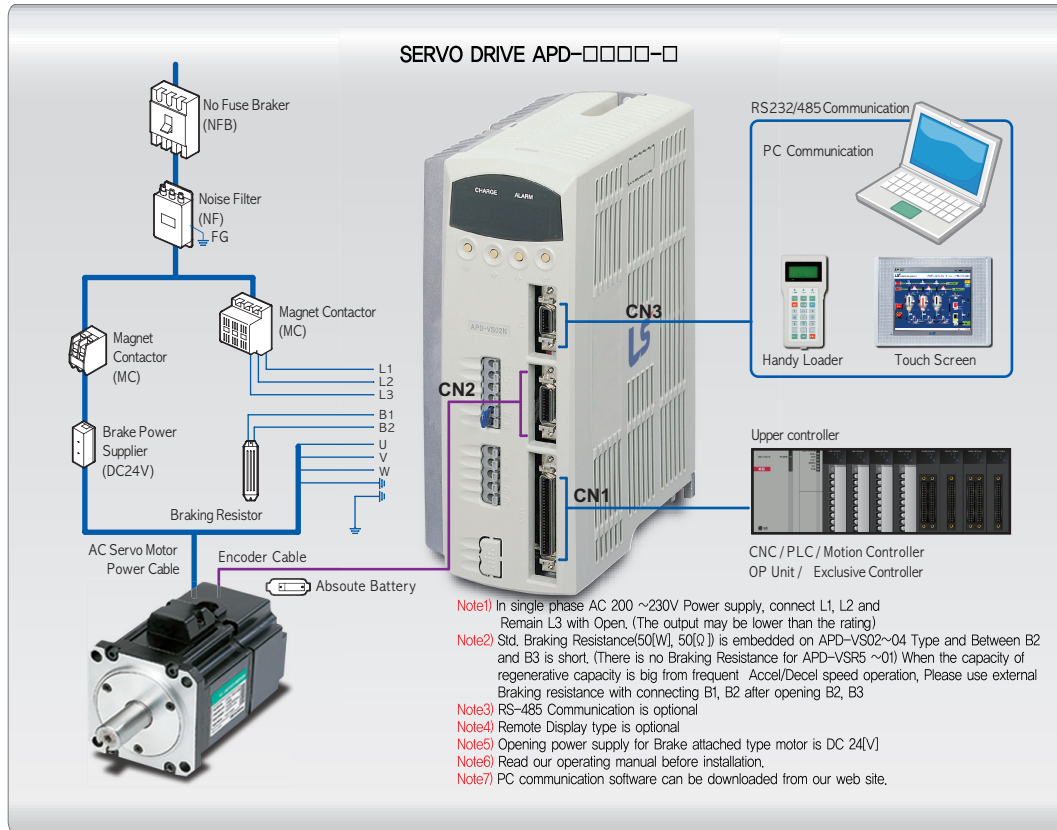
CN3 connection
RS232/485
Communication



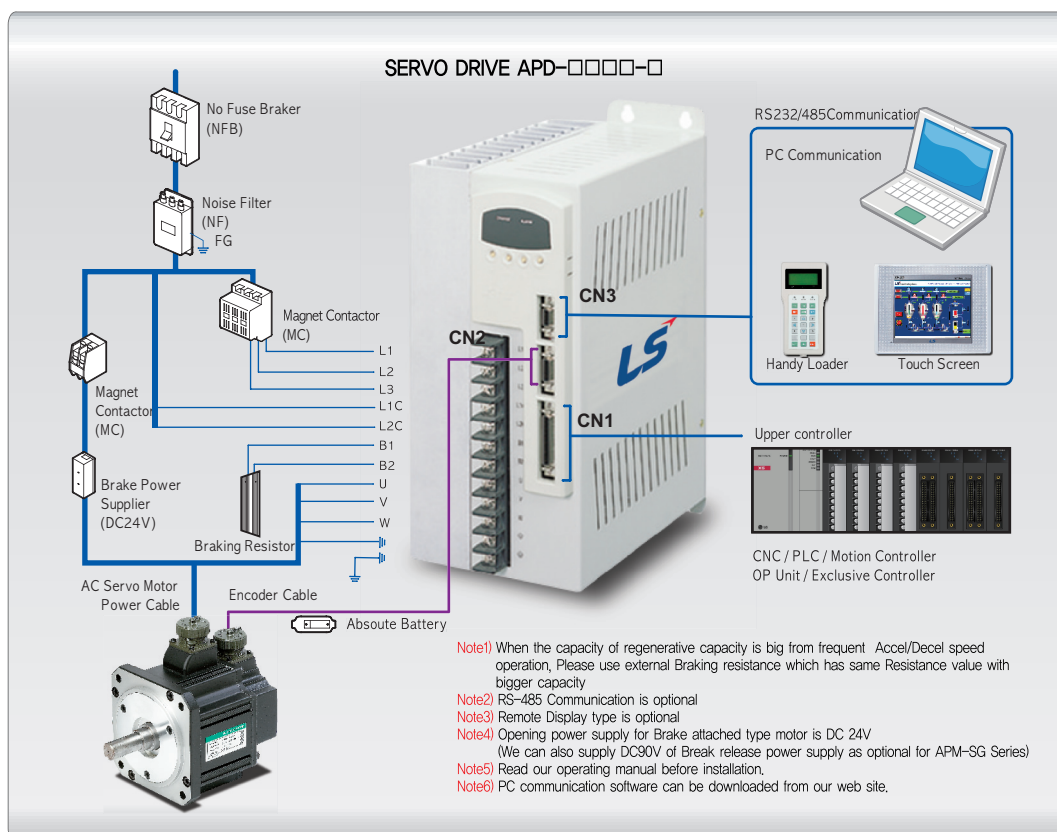
AC SERVO SYSTEM

System Configuration

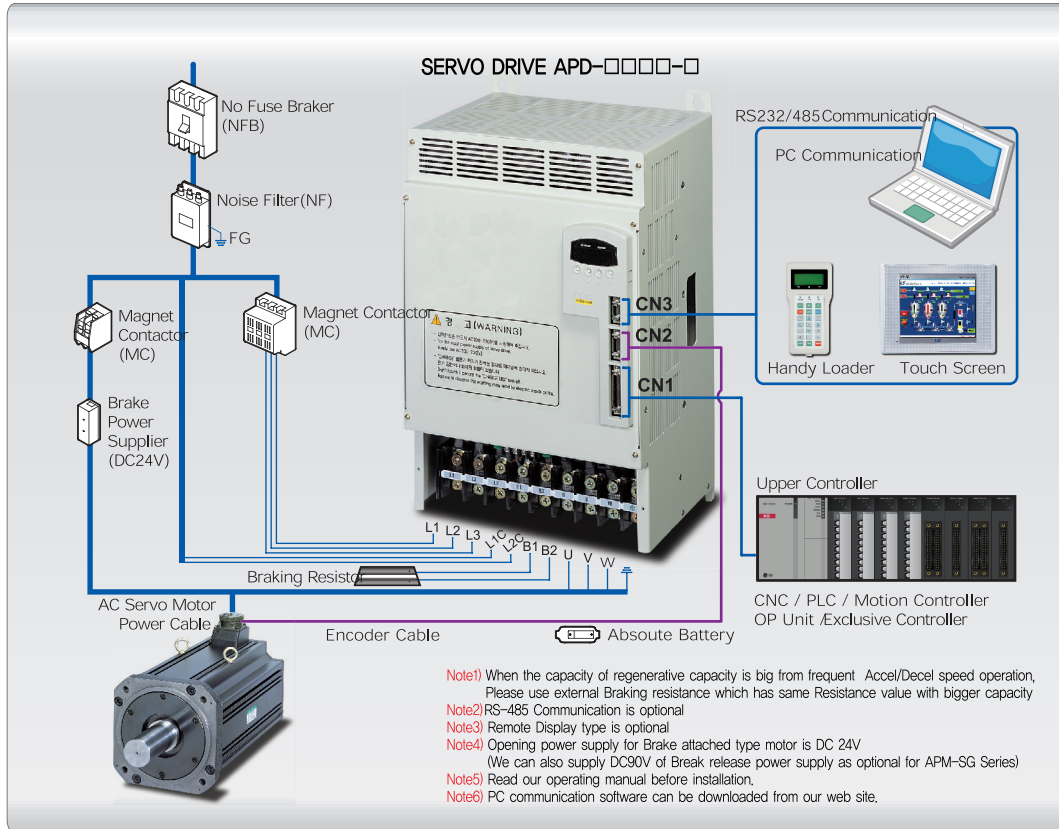
Below 400W 3 Phase AC 200~230[V] +10%, -15% (50/60Hz)



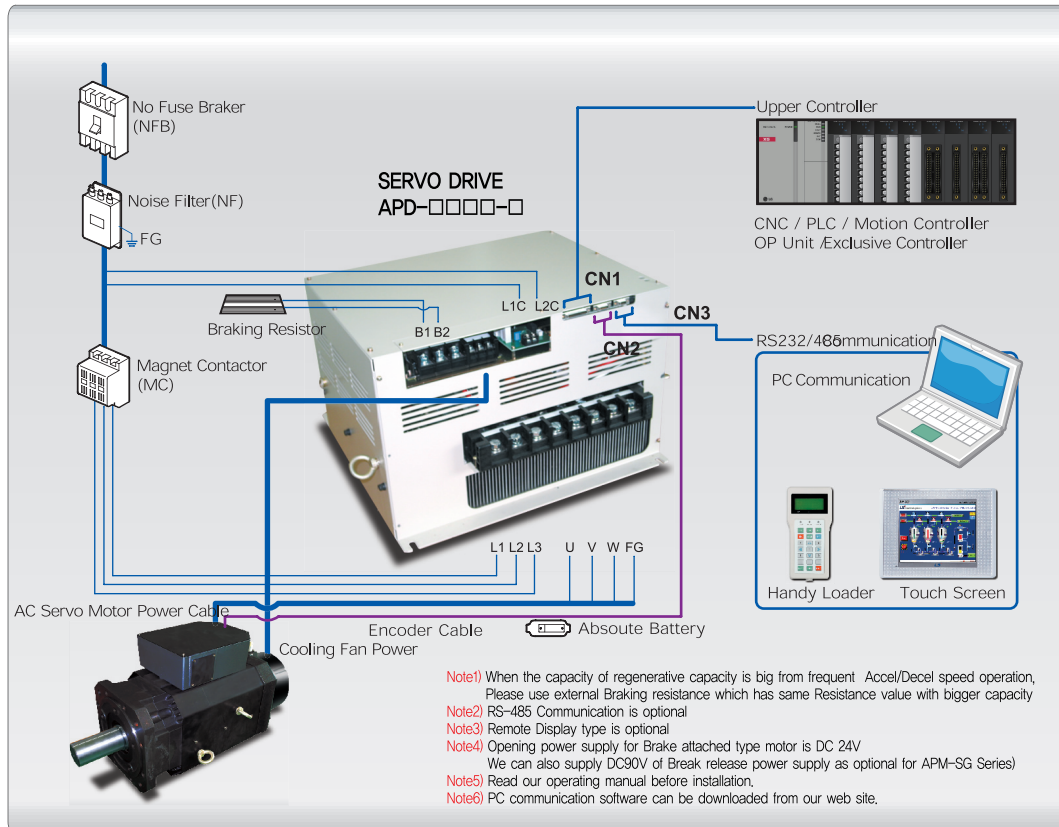
1.5kW ~ 7.5kW 3Phase AC 200~230[V] +10%, -15% (50/60Hz)



▶ 11kW ~ 15kW ▶ 3Phase AC 200-230[V] +10%, -15% (50/60Hz)



▶ 22kW, 30kW, 37kW ▶ 3Phase AC 200-230[V] +10%, -15% (50/60Hz)



AC SERVO SYSTEM

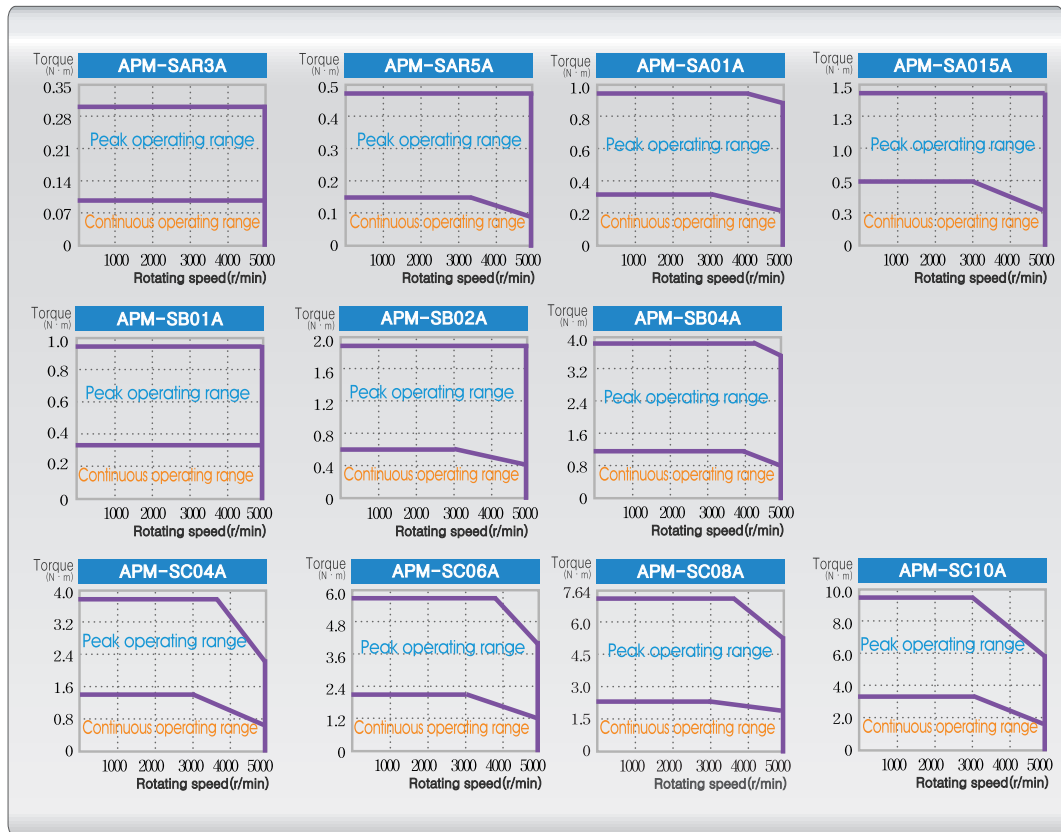
Characteristics of Servo Motor

Servo Motor's Characteristics (Rated Speed 3000r/min)

Servo Motor Model (APM-□□□□)	SAR3A	SAR5A	SA01A	AS015A	SB01A	SB02A	SB04A	SC04A	SC06A	SC08A	SC10A	
Servo Drive Model (APD-□□□□)	VSR5		VS01	VS02	VS01	VS02	VS04	VS04		VS05	VS10	
Flange Size (□)	□40				□60			□80				
Rated Power [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	0.159	0.318	0.477	0.318	0.637	1.274	1.27	1.91	2.55	3.19
	[kgf·cm]	0.97	1.62	3.25	4.872	3.25	6.50	13.0	13.0	19.5	26.0	32.5
Max. Instantaneous torque	[N·m]	0.286	0.477	0.955	1.432	0.955	1.912	3.822	3.82	5.73	7.64	9.56
	[kgf·cm]	2.92	4.87	9.74	14.62	9.74	19.5	39.0	39.0	58.46	77.94	97.5
Rated rpm [r/min]	3,000											
Max. rpm [r/min]	5,000											
Moment of inertia	[kg·m ² ×10 ⁻⁴]	0.0164	0.024	0.045	0.066	0.114	0.182	0.321	0.674	1.092	1.509	1.927
	[gf·cm·s ²]	0.0167	0.0245	0.0459	0.065	0.116	0.186	0.327	0.687	1.114	1.539	1.966
Allowable Load Inertia Ratio	30times of motor inertia			20times of motor inertia			15times of motor inertia					
Rated Power Rate [kW/S]	5.57	10.55	22.52	35.34	8.92	22.26	50.65	24.07	33.45	43.02	52.65	
Speed, Potion Transducer	Standard(Note1)	Incremental 2048 [P/R]				Incremental 2500 [P/R]						
	Option	-				Absolute, 11/13bit Manchester communication						
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP55(Excluding the shaft-through section and connectors)					Totally enclosed, Non ventilated IP55(Excluding the shaft-through section and connectors)					
	Insulation rate	B										
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]										
	Ambient Humidity	Lower than 90[%] (Avoid condensation)										
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust										
	E/V	Elevation/Vibration 49[m/s ²](5G)										
Weight [kg]	0.32	0.38	0.5	0.7	0.82	1.05	1.58	1.88	2.52	3.15	3.80	

Note) Standard Encoder specification is 5[V] Line Driver.

Rotation Speed-Torque's Characteristics

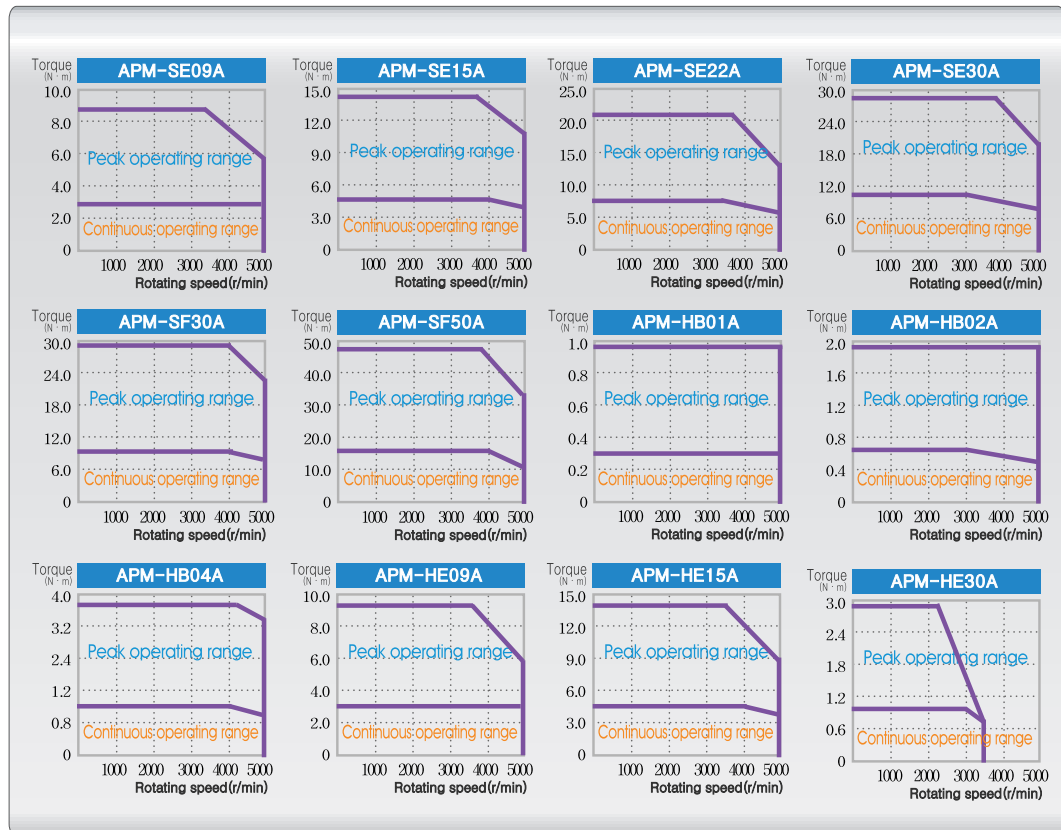


▶ Servo Motor's Characteristics (Rated Speed 3000r/min)

Servo Motor Model (APM-□□□□□)	SE09A	SE15A	SE22A	SE30A	SF30A	SF50A	HB01A	HB02A	HB04A	HE09A	HE15A	HE30A	
Servo Drive Model (APD-□□□□□)	VS10	VS15	VS20	VS35	VS35	VS50	VS01	VS02	VS04	VS10	VS15	VS35	
Flange Size (□)	□130			□180			□60			□130			
Rated Power [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]	2.87	4.77	7.0	9.55	9.55	15.91	0.318	0.637	1.274	2.86	4.77	9.55
	[kgf · cm]	29.2	48.7	71.4	97.4	97.4	162.3	3.25	6.50	13.0	29.2	48.7	97.44
Max. Instantaneous torque	[N · m]	8.59	14.32	21.01	28.65	28.64	47.74	0.955	1.912	3.822	8.59	14.32	28.65
	[kgf · cm]	87.7	146.1	214.3	292.2	292.2	487.0	9.74	19.5	39.0	87.7	146.1	292.33
Rated rpm [r/min]	3,000												
Max. rpm [r/min]	5,000						3,500						
Moment of inertia	[kg · m ² × 10 ⁻⁴]	6.659	11.999	17.339	22.679	30.74	52.13	0.269	0.333	0.461	19.558	22.268	41.385
	[gf · cm · s ²]	6.795	12.238	17.685	23.132	31.35	53.16	0.274	0.339	0.470	19.943	22.707	42.23
Allowable Load Inertia Ratio	10times of motor inertia				5times of motor inertia		20times of motor inertia			10times of motor inertia			
Rated Power Rate [kW/S]	12.32	18.98	28.25	40.17	29.66	48.56	3.77	12.17	35.17	4.20	10.24	22.03	
Speed, Potion Transducer	Standard(Note1)	Incremental 3000[P/R]						Incremental 1024[P/R]			Incremental 2048[P/R]		
	Option	Absolute, 11/13bit Manchester communication						-			-		
Specification & Features	Protective Method	Totally enclosed, Non ventilated (IP65)(Excluding the shaft-through section and connectors)						Totally enclosed, Non ventilated (IP65)(Excluding the shaft-through section and connectors)					
	Insulation rate	B											
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]						Stor : -10~60[°C]					
	Ambient Humidity	Lower than 90[%] (Avoid condensation)											
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust											
		Elevation/Vibration 49[m/s ²](5G)											
Weight E/V[kg]	5.5	7.54	9.68	11.78	12.11	17.7	0.89	1.16	1.69	5.82	7.43		

Note) Standard Encoder specification is 5[V] Line Driver.

▶ Rotation Speed-Torque's Characteristics



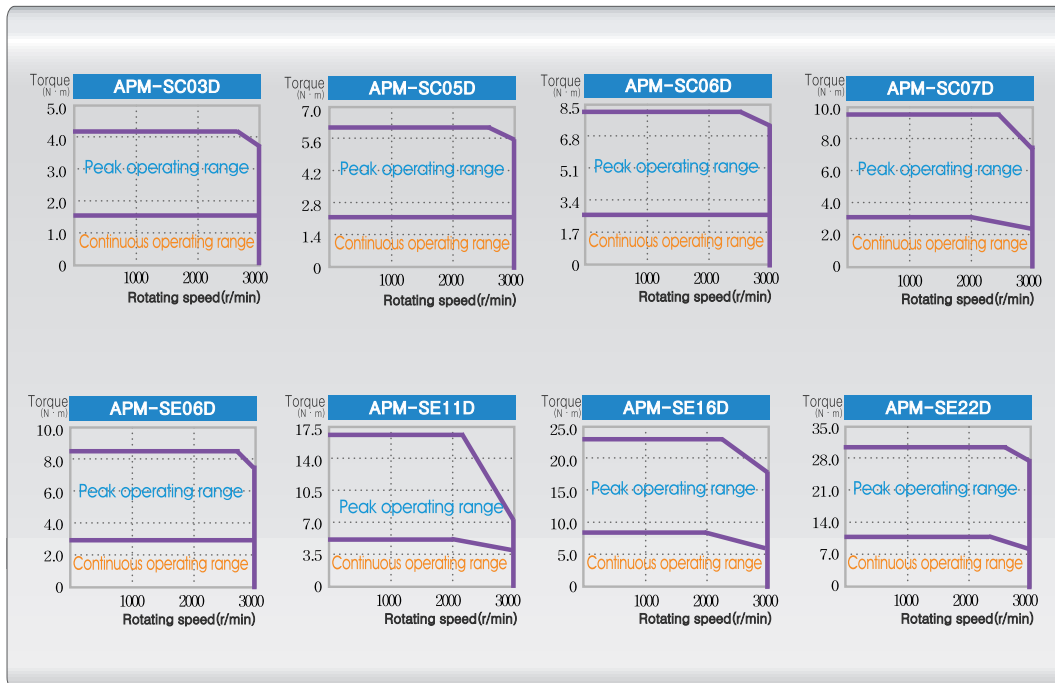
Characteristics of Servo Motor

➤ **Servo Motor's Characteristics (Rated Speed 2000r/min)**

Servo Motor Model (APM-□□□□□)	SC03D	SC05D	SC06D	SC07D	SE06D	SE11D	SE16D	SE22D	
Servo Drive Model (APD-□□□□□)	VS04		VS05		VS05	VS10	VS15	VS20	
Flange Size (□)	□80				□130				
Rated Power [kW]	0.3	0.3	0.55	0.65	0.6	1.1	1.6	2.2	
Rated Torque	[N·m]	1.43	1.43	2.63	3.10	2.86	5.25	7.63	10.5
	[kgf·cm]	14.6	14.6	26.8	31.6	29.2	53.6	77.9	107.1
Max. Instantaneous torque	[N·m]	4.29	4.29	7.88	9.31	8.59	15.75	22.92	31.51
	[kgf·cm]	43.8	43.8	80.4	94.8	87.7	160.7	233.8	321.4
Rated rpm [r/min]	3,000								
Max. rpm [r/min]	5,000								
Moment of inertia	[kg·m ² ×10 ⁻⁴]	0.674	0.674	1.509	1.927	6.569	11.999	17.339	22.67
	[gf·cm·s ²]	0.687	0.687	1.539	1.966	6.792	12.238	17.685	23.132
Allowable Load Inertia Ratio	15 times of motor inertia				10 times of motor inertia				
Rated Power Rate [kW/S]	30.44	30.44	45.7	49.98	12.31	22.97	33.63	48.61	
Speed, Potion Transducer	Standard(Note1)	Incremental 2500 [P/R]			Incremental 3000 [P/R]				
	Option	Absolute, 11/13bit Manchester communication			Absolute, 11/13bit Manchester communication				
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors)							
	Insulation rate	B							
	Ambient Temp.	Operating Temp. : 0~40[°C] ·Storage Temp. : -20~60[°C]							
	Ambient Humidity	Lower than 90[%] (Avoid condensation)							
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust							
	E/V	Elevation/Vibration 49[m/s ²](5G)							
Weight [kg]	1.85	1.85	3.18	3.90	5.5	7.54	9.68	11.78	

Note) Standard Encoder specification is 5[V] Line Driver.

➤ **Rotation Speed-Torque's Characteristics**

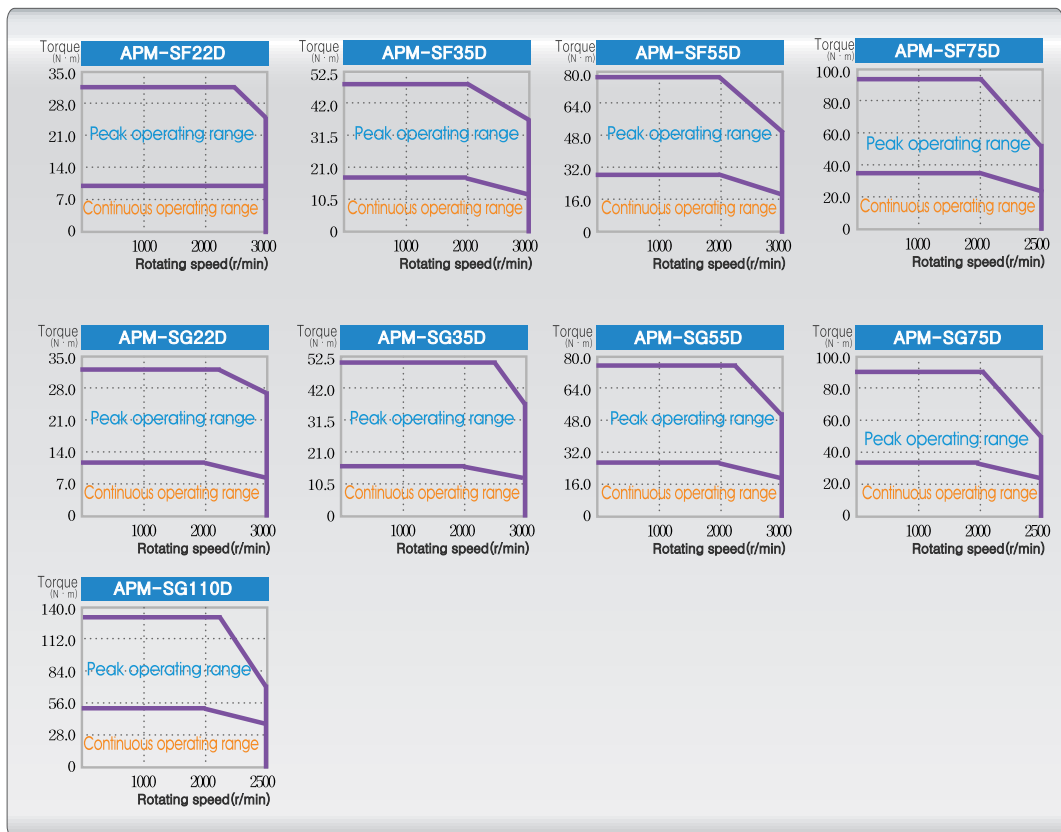


▶ Servo Motor's Characteristics (Rated Speed 2000r/min)

Servo Motor Model (APM-□□□□□)	SF22D	SF35D	SF55D	SF75D	SG22D	SG35D	SG55D	SG75D	SG110D	
Servo Drive Model (APD-□□□□□)	VS20	VS35	VS50	VS75	VS20	VS35	VS50	VS75	VS110	
Flange Size (□)	□180				□220					
Rated Power [kW]	2.2	3.5	5.5	7.5	2.2	3.5	5.5	7.5	11.0	
Rated Torque	[N · m]	10.5	16.7	26.25	35.81	10.5	16.7	26.3	35.8	52.5
	[kgf · cm]	107.1	170.4	267.8	365.41	107.2	170.5	267.9	365.4	535.9
Max. Instantaneous torque	[N · m]	31.5	50.12	78.76	89.53	31.5	50.1	78.8	89.5	131.3
	[kgf · cm]	321.3	511.3	803.4	913.53	321.3	511.5	803.8	913.4	1339.7
Rated rpm [r/min]	2,000									
Max. rpm [r/min]	3,000			2,500	3,000			2,500		
Moment of inertia	[kg · m ² ×10 ⁻⁴]	30.74	52.13	83.60	121.35	51.42	80.35	132.41	172.91	291.36
	[gf · cm · s ²]	31.35	53.16	85.24	123.74	52.47	81.99	135.11	176.44	297.31
Allowable Load Inertia Ratio	30 times of motor inertia									
Rated Power Rate [kW/S]	35.88	53.56	82.56	105.75	21.45	34.75	52.07	74.15	94.65	
Speed, Potion Transducer	Standard(Note1)	Incremental 3000[P/R]								
	Option	Absolute, Manchester communication								
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors.)								
	Insulation rate	B								
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]								
	Ambient Humidity	Lower than 90[%] (Avoid condensation)								
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust								
E/V	Elevation/Vibration 49[m/s ²](5G)									
Weight [kg]	12.4	17.7	26.3	35.6	16.95	21.95	30.8	37.52	66.2	

Note) Standard Encoder specification is 5[V] Line Driver.

▶ Rotation Speed-Torque's Characteristics



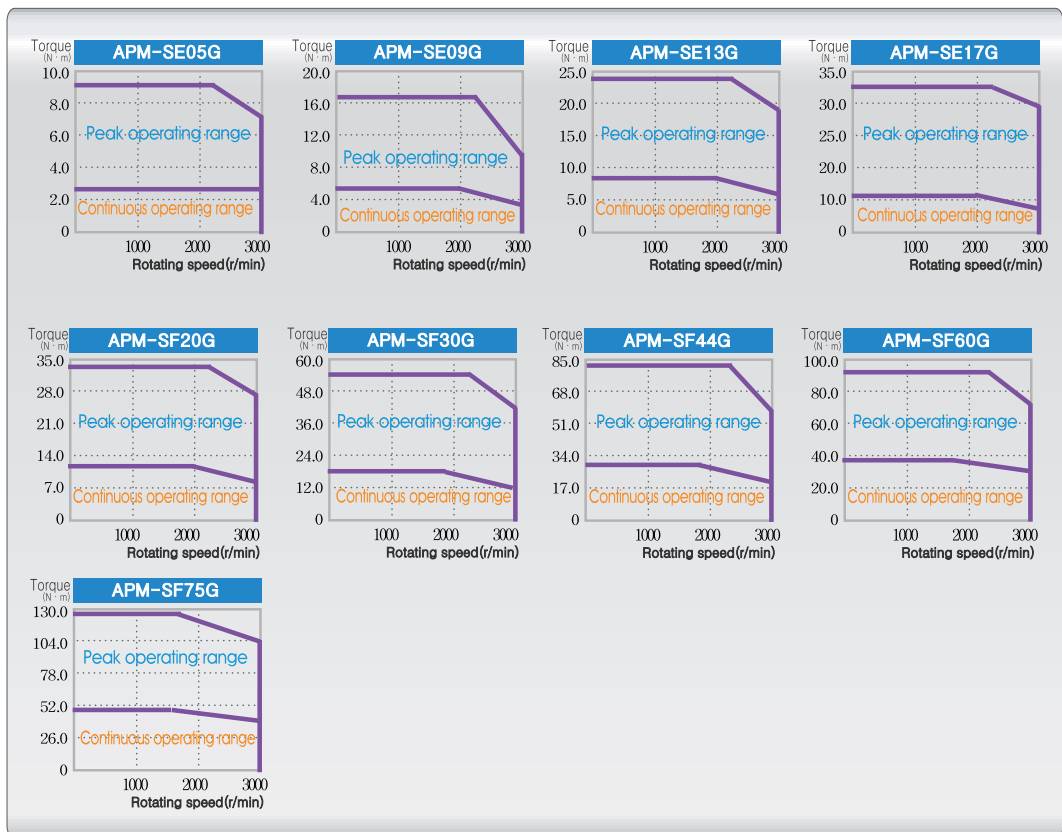
Characteristics of Servo Motor

↳ Servo Motor's Characteristics (Rated Speed 1500r/min)

Servo Motor Model (APM-□□□□□)	SF05G	SF09G	SF13G	SF17G	SF20G	SF30G	SF44G	SF60G	SF75G	
Servo Drive Model (APD-□□□□□)	VS05	VS10	VS15	VS20	VS20	VS35	VS50	VS75	VS110	
Flange Size (□)	□130				□180					
Rated Power [kW]	0.45	0.85	1.3	1.7	1.8	2.9	4.4	6.0	7.5	
Rated Torque	[N·m]	2.86	5.41	8.27	10.82	11.45	18.46	28.0	38.2	47.7
	[kgf·cm]	29.22	55.19	84.41	110.38	116.88	188.3	285.7	389.8	487.2
Max. Instantaneous torque	[N·m]	8.59	16.23	24.82	32.46	34.35	55.38	84.03	95.5	128.8
	[kgf·cm]	87.66	165.57	253.23	331.14	350.64	564.9	857.1	974.9	1315.4
Rated rpm [r/min]	1,500									
Max. rpm [r/min]	3,000				2,500					
Moment of inertia	[kg·m ² ×10 ⁻⁴]	6.659	11.999	17.339	22.679	30.74	52.13	83.60	121.35	143.82
	[gf·cm·s ²]	6.792	12.238	17.685	23.132	31.35	53.16	85.24	123.74	146.76
Allowable Load Inertia Ratio	10 times of motor inertia				5 times of motor inertia					
Rated Power Rate [kW/S]	12.28	24.39	39.54	51.61	42.70	65.36	93.84	120.32	158.48	
Speed, Position Transducer	Standard(Note1)	Incremental 3000[P/R]								
	Option	Absolute, 11/13bit Manchester communication								
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors.)								
	Insulation rate	B								
	Ambient Temp.	Operating Temp. : 0~40[°C] ·Storage Temp. : -20~60[°C]								
	Ambient Humidity	Lower than 90[%] (Avoid condensation)								
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust								
	E/V	Elevation/Vibration 49[m/s ²](5G)								
Weight [kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	39.4	

Note) Standard Encoder specification is 5[V] Line Driver.

↳ Rotation Speed-Torque's Characteristics

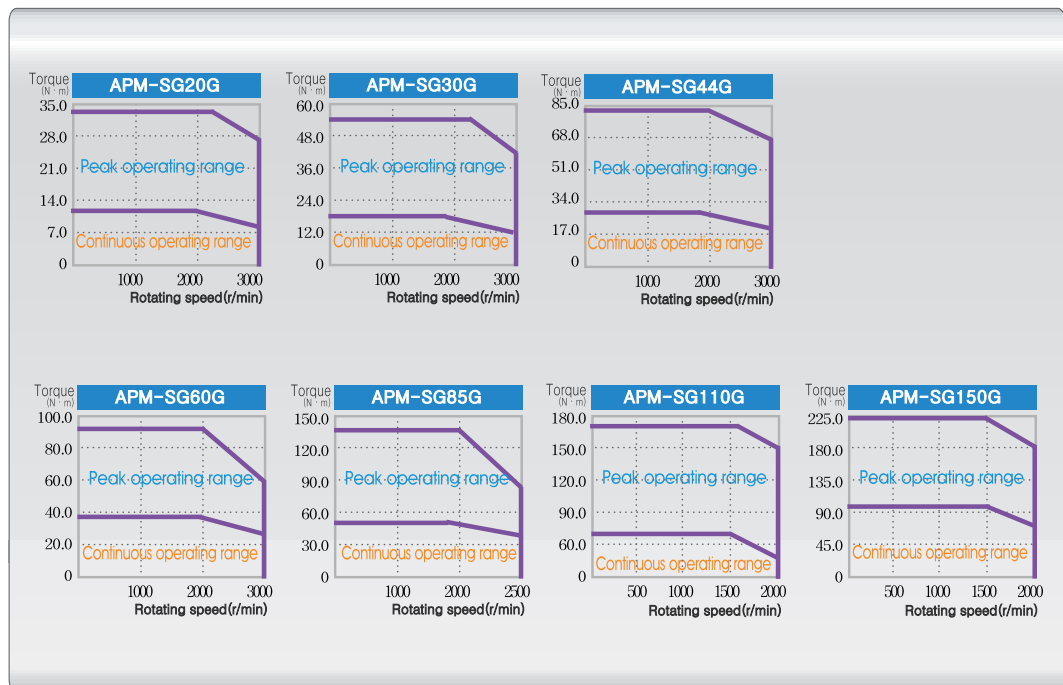


▶ Servo Motor's Characteristics (Rated Speed 1500r/min)

Servo Motor Model (APM-□□□□□)	SG20G	SG30G	SG44G	SG60G	SG85G	SG110G	SG150G
Servo Drive Model (APD-□□□□□)	VS20	VS35	VS50	VS75	VS110	VS150	VS150
Flange Size (□)	□ 220						
Rated Power [kW]	1.8	2.9	4.4	6.0	8.5	11.0	15.0
Rated Torque	[N · m]	11.5	18.5	28.0	38.2	54.1	70.0
	[kgf · cm]	116.9	188.4	285.8	389.7	552.1	714.5
Max. Instantaneous torque	[N · m]	34.4	55.4	84.0	95.5	135.3	175.1
	[kgf · cm]	350.8	565.1	857.4	974.3	1380.3	1786.4
Rated rpm [r/min]	1,500						
Max. rpm [r/min]	3,000		2,500			2,000	
Moment of inertia	[kg · m ² ×10 ⁻⁴]	51.42	80.35	132.41	172.91	291.36	424.5
	[gf · cm · s ²]	52.47	81.99	135.11	176.44	297.31	433.2
Allowable Load Inertia Ratio	5 times of motor inertia						
Rated Power Rate [kW/S]	25.53	42.41	59.25	84.36	78.23	168.27	236.47
Speed, Potion Transducer	Standard(Note1)	Incremental 3000[P/R]					
	Option	Absolute, Manchester communication					
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors.)					
	Insulation rate	B					
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]					
	Ambient Humidity	Lower than 90[%] (Avoid condensation)					
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust					
E/V	Elevation/Vibration 49[m/s ²](5G)						
Weight [kg]	16.95	21.95	30.8	37.52	66.2	66.3	92.2

Note) Standard Encoder specification is 5[V] Line Driver.

▶ Rotation Speed-Torque's Characteristics



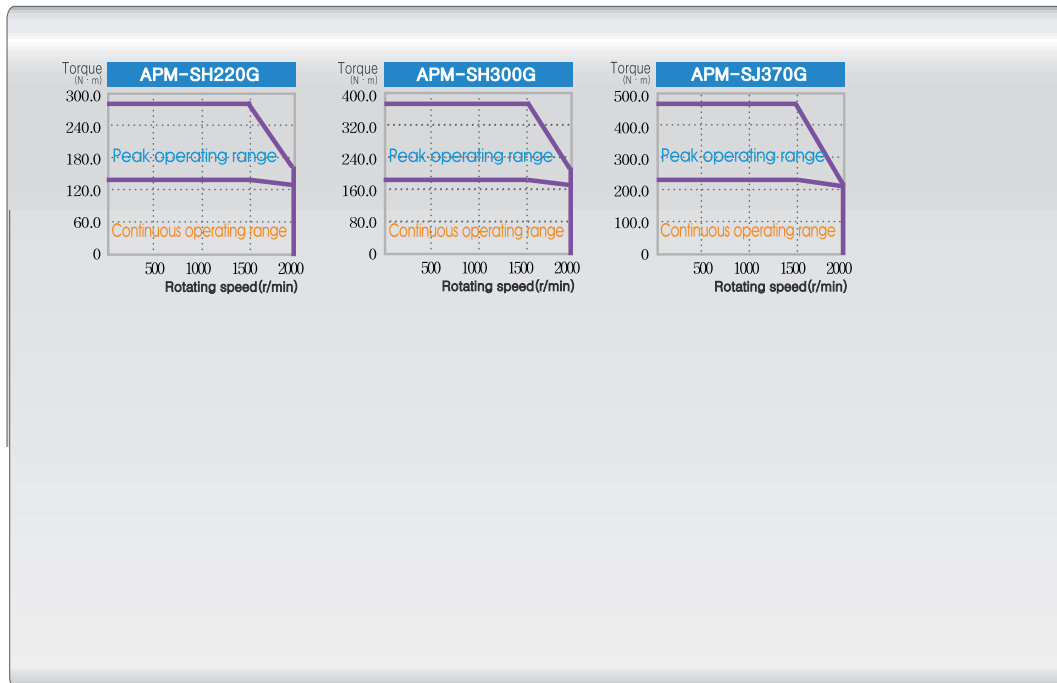
Characteristics of Servo Motor

Servo Motor's Characteristics (Rated Speed 1500r/min)

Servo Motor Model (APM-□□□□□)	SH220G	SH300G	SJ370G	
Servo Drive Model (APD-□□□□□)	VS220	VS300	VS370	
Flange Size (□)	□250		□280	
Rated Power [kW]	22	30	37	
Rated Torque	[N · m]	140.04	190.96	235.52
	[kgf · cm]	1,429.0	1,948.6	2,403.3
Max. Instantaneous torque	[N · m]	280.08	381.93	471.04
	[kgf · cm]	2,858.0	3,897.2	4,806.6
Rated rpm	[r/min]	1,500		
Max. rpm	[r/min]	2,000		
Moment of inertia	[kg · m ² ×10 ⁻⁴]	628.51	800.81	1,314.31
	[gf · cm · s ²]	641.34	817.15	1,341.13
Allowable Load Inertia Ratio		Incremental 3000[P/R]		
Rated Power Rate [kW/S]	312.03	455.38	422.05	
Speed, Potion Transducer	Standard(Note1)	Incremental 3000[P/R]		
	Option	Absolute, Manchester communication		
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP55(Excluding the shaft-through section and connectors.)		
	Insulation rate	B		
	Ambient Temp.	Operating Temp. : 0~50[°C] · Storage Temp. : -20~60[°C]		
	Ambient Humidity	Lower than 90[%] (Avoid condensation)		
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust		
E/V	Elevation/Vibration 49[m/s ²](5G)			
Weight [kg]	117	138	232	

Note) Standard Encoder specification is 5[V] Line Driver.

Rotation Speed-Torque's Characteristics

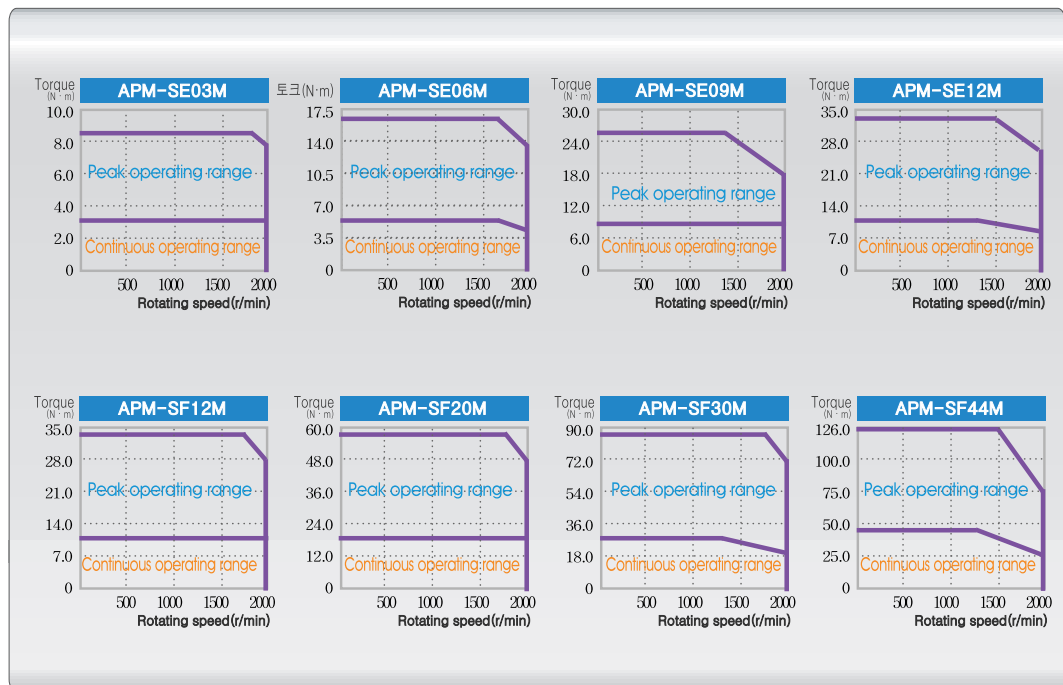


▶ Servo Motor's Characteristics (Rated Speed 1000r/min)

Servo Motor Model (APM-□□□□□)	SE03M	SE06M	SE09M	SE12M	SF12M	SF20M	SF30M	SF40M	
Servo Drive Model (APD-□□□□□)	VS04	VS05	VS10	VS15	VS15	VS20	VS35	VS50	
Flange Size (□)	□130				□180				
Rated Power [kW]	0.3	0.6	0.9	1.2	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
	[kgf · cm]	29.2	58.4	87.7	116.9	116.9	194.8	292.2	428.7
Max. Instantaneous torque	[N · m]	8.59	17.18	25.77	34.22	34.38	57.29	85.94	126.05
	[kgf · cm]	87.7	175.3	262.9	349.1	350.7	584.4	876.6	1286.2
Rated rpm [r/min]	1,000								
Max. rpm [r/min]	2,000								
Moment of inertia	[kg · m ² ×10 ⁻⁴]	6.659	11.999	17.339	22.679	30.74	52.13	83.60	121.35
	[gf · cm · s ²]	6.792	12.238	17.685	23.132	31.35	53.16	85.24	123.74
Allowable Load Inertia Ratio	10 times of motor inertia				5 times of motor inertia				
Rated Power Rate [kW/S]	12.31	27.34	42.56	57.85	42.70	69.96	98.16	145.55	
Speed, Potion Transducer	Standard(Note1)	Incremental 3000 [P/R]							
	Option	Absolute, Manchester communication							
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors.)							
	Insulation rate	B							
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]							
	Ambient Humidity	Lower than 90[%] (Avoid condensation)							
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust							
	E/V	Elevation/Vibration 49[m/s ²](5G)							
Weight [kg]	5.5	7.54	9.68	11.78	12.4	17.7	26.3	35.6	

Note) Standard Encoder specification is 5[V] Line Driver.

▶ Rotation Speed-Torque's Characteristics



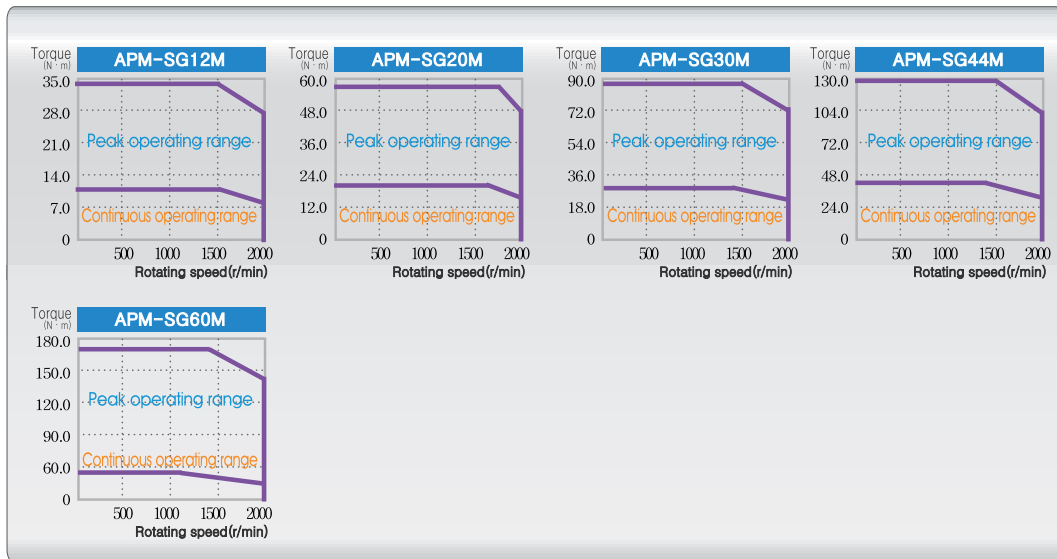
Characteristics of Servo Motor

Servo Motor's Characteristics (Rated Speed 1000r/min)

Servo Motor Model (APM-□□□□□)		SG12M	SG20M	SG30M	SG44M	SG60M
Servo Drive Model (APD-□□□□□)		VS15	VS20	VS35	VS50	VS75
Flange Size (□)		□220				
Rated Power [kW]		1.2	2.0	3.0	4.4	6.0
Rated Torque	[N · m]	11.5	19.1	28.6	42.0	57.3
	[kgf · cm]	116.9	194.9	292.3	428.7	584.6
Max. Instantaneous torque	[N · m]	34.4	57.3	85.9	126.0	171.9
	[kgf · cm]	350.8	584.6	876.9	1286.1	1753.8
Rated rpm [r/min]		1,000				
Max. rpm [r/min]		2,000				
Moment of inertia	[kg · m ² × 10 ⁻⁴]	51.42	80.35	132.41	172.91	291.36
	[gf · cm · s ²]	52.47	81.99	135.11	176.44	297.31
Allowable Load Inertia Ratio		30 times of motor inertia				
Rated Power Rate [kW/S]		25.53	45.39	61.97	102.08	112.64
Speed, Potion Transducer	Standard(Note1)	Incremental 3000[P/R]				
	Option	Absolute, Manchester communication				
Specification & Features	Protective Method	Totally enclosed, Non ventilated IP65(Excluding the shaft-through section and connectors.)				
	Insulation rate	B				
	Ambient Temp.	Operating Temp. : 0~40[°C] · Storage Temp. : -20~60[°C]				
	Ambient Humidity	Lower than 90[%] (Avoid condensation)				
	Atmosphere	Avoid direct sunlight, no corrosive gas, inflammable gas, oil mist, or dust				
E/V		Elevation/Vibration 49[m/s ²](5G)				
Weight [kg]		16.95	21.95	30.8	37.52	66.2

Note) Standard Encoder specification is 5[V] Line Driver.

Rotation Speed-Torque's Characteristics



Brake Specification

Applicable Motor Series	APM-SA	APM-SB	APM-SC	APM-SE	APM-SF	APM-SG
Use	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance	Maintenance
Power supply [V]	DC 24V	DC 24V	DC 24V	DC 24V	DC 24V	DC 90V
Rated 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

Note 1) For the electronic Brake that is attached to our Servo Motor, the same specifications are to be applied as per the series

2) use it for braking purpose because the electronic brake is only for maintenance of stopped condition


3) The characteristic of electronic brake is measured at 20 C

4) APM-SA,SB,SC,SE,SF Series-DC24[V], APM-SG Series-DC90[V]

Servo Motor Dimension

SA Series | APM-SAR3A, APM-SAR5A, APM-SA01A, APM-SA015A


Plug Specification



Plug Specification : 172167-1
(Made by APM)

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

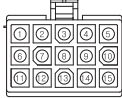
(Power Connector Pin)



Plug Specification : 172165-1
(Made by APM)

Pin No.	Color	Phase
1	Red	BK+
2	White	BK-

(Brake Connector Pin)

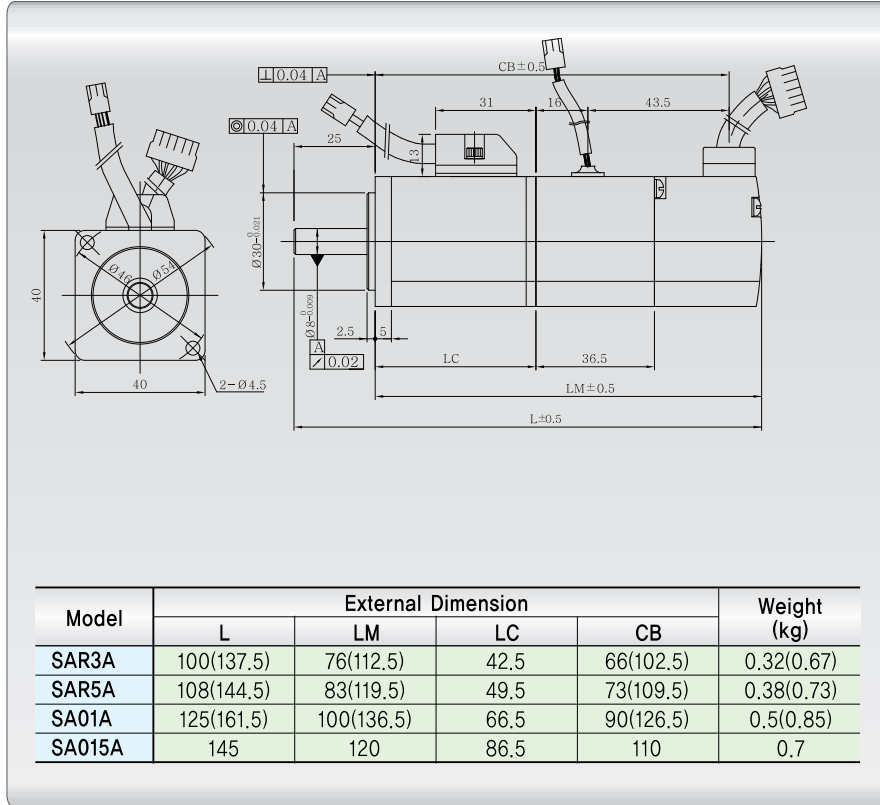


Plug Specification : 172171-1
(Made by APM)

Pin No.	Phase	Pin No.	Phase
1	A	9	V
2	A̅	10	V̅
3	B	11	W
4	B̅	12	W̅
5	Z	13	+5V
6	Z̅	14	0V
7	U	15	SHIELD
8	U̅		


(Encoder Connector Pin)

- Note**
- 1) 40Flange standard shaft : Straight
 - 2) Use DC24V for brake input supply depending on Brake specification
 - 3) The dimension in () is for Brake attached motor



SB Series | APM-SB01A, APM-SB02A, APM-SB04A


Plug Specification



Plug Specification : 172167-1
(Made by APM)

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

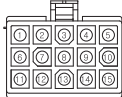
(Brake Connector Pin)



Plug Specification : 172165-1
(Made by APM)

Pin No.	Color	Phase
1	Red	BK+
2	White	BK-

(Brake Connector Pin)

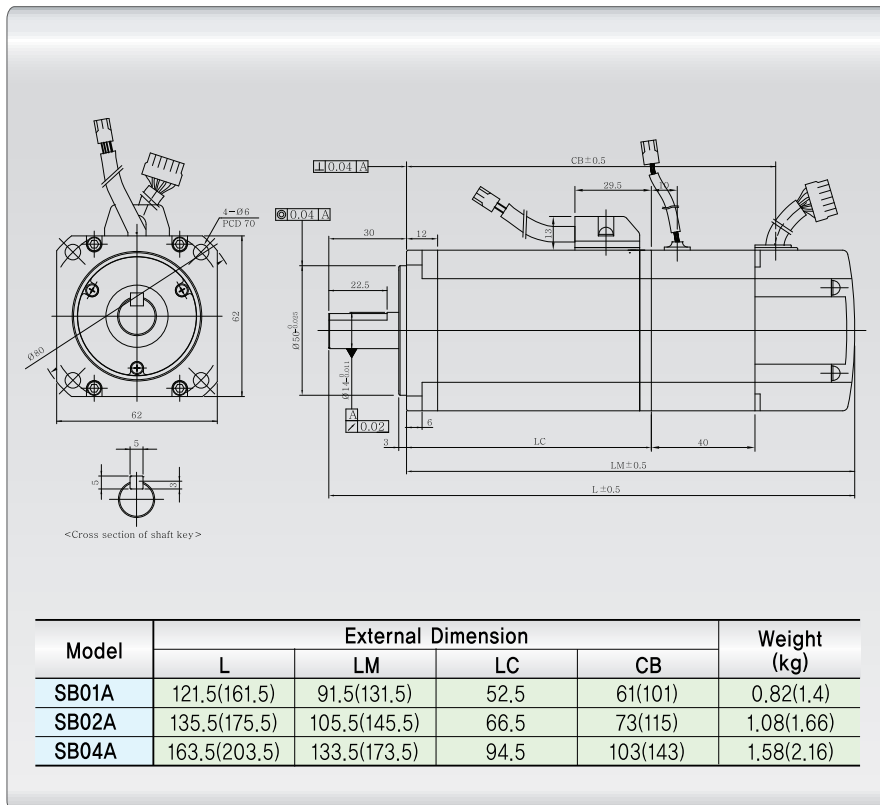


Plug Specification : 172171-1
(Made by APM)

Pin No.	Phase	Pin No.	Phase
1	A	9	V
2	A̅	10	V̅
3	B	11	W
4	B̅	12	W̅
5	Z	13	+5V
6	Z̅	14	0V
7	U	15	SHIELD
8	U̅		

(Encoder Connector Pin)

- Note**
- 1) Use DC24V for brake input supply depending on Brake specification
 - 2) The dimension in () is for Brake attached motor



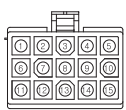


AC SERVO SYSTEM

Servo Motor Dimension

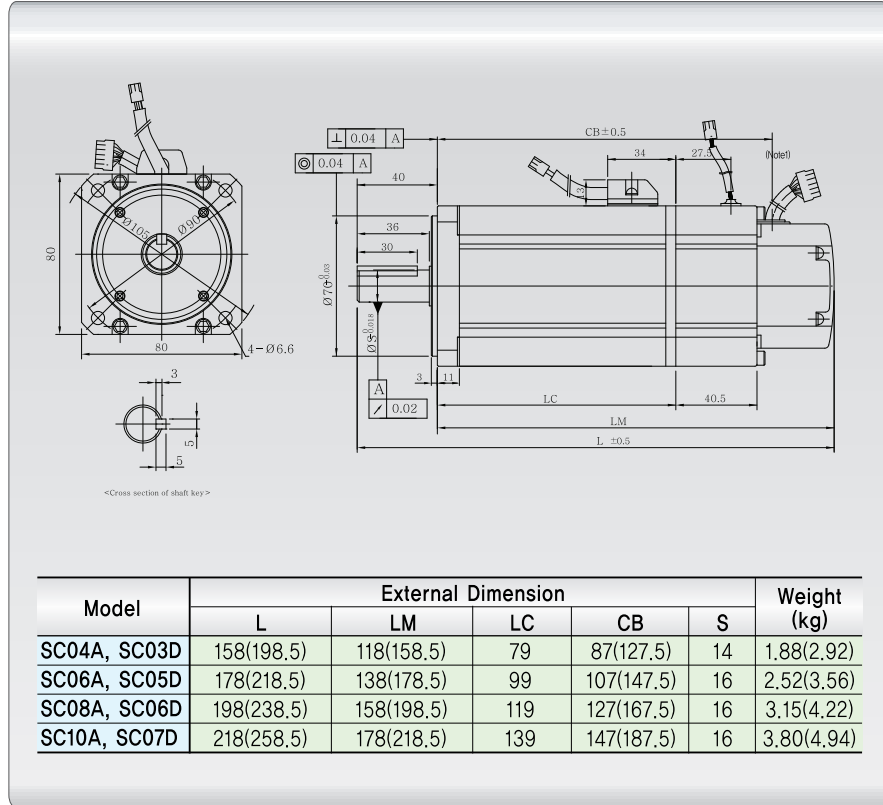
SC Series | APM-SC04A, SC03D, APM-SC06A, SC05D, APM-SC08A, SC06D, APM-SC10A, SC07D

Plug Specification

	Pin No.	Color	Phase	
Plug Specification : 172167-1 (Made by APM)	1	Red	U	
	2	White	V	
	3	Black	W	
	4	Green	Ground	
	Pin No.	Color	Phase	
Plug Specification : 172165-1 (Made by APM)	1	Red	BK+	
	2	White	BK-	
	Pin No.	Phase	Pin No.	Phase
Plug Specification : 172171-1 (Made by APM)	1	A	9	V
	2	A̅	10	V̅
	3	B	11	W
	4	B̅	12	W̅
	5	Z	13	+5V
	6	Z̅	14	0V
	7	U	15	SHIELD
	8	U̅		




(Encoder Connector Pin)

Note
 1) Use DC24V for brake input supply depending on Brake specification
 2) The dimension in () is for Brake attached motor

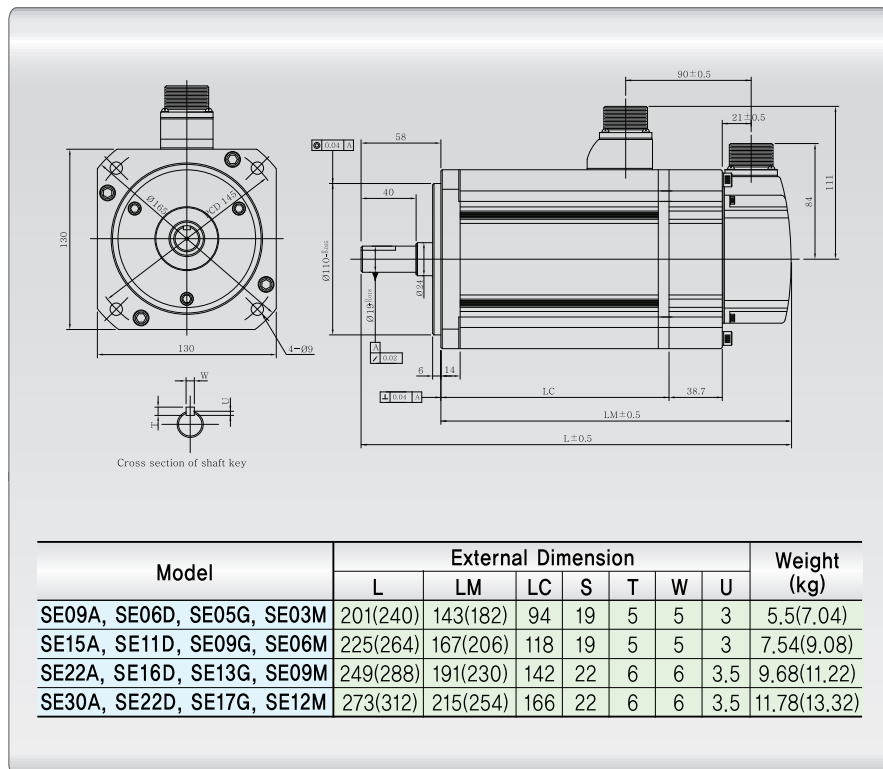


SE Series | APM-SE09A, SE06D, SE05G, SE03M, APM-SE15A, SE11D, SE09G, SE06M, APM-SE22A, SE16D, SE13G, SE09M, APM-SE30A, SE22D, SE17G, SE12M

Plug Specification

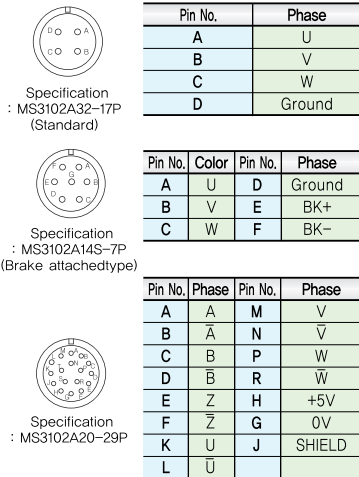
	Pin No.	Color		
Plug Specification : MS3102A20-4P (Standard)	A	U		
	B	V		
	C	W		
	D	Ground		
	Pin No.	Color	Pin No.	Phase
Plug Specification : MS3102A20-15P (Brake attached type)	A	U	D	Ground
	B	V	E	BK+
	C	W	F	BK-
	Pin No.	Phase	Pin No.	Phase
Specification : MS3102A20-29P	A	A	M	V
	B	A̅	N	V̅
	C	B	P	W
	D	B̅	R	W̅
	E	Z	H	+5V
	F	Z̅	G	0V
	K	U	J	SHIELD
	L	U̅		

Note
 1) Use DC24V for brake input supply depending on Brake specification
 2) The dimension in () is for Brake attached motor

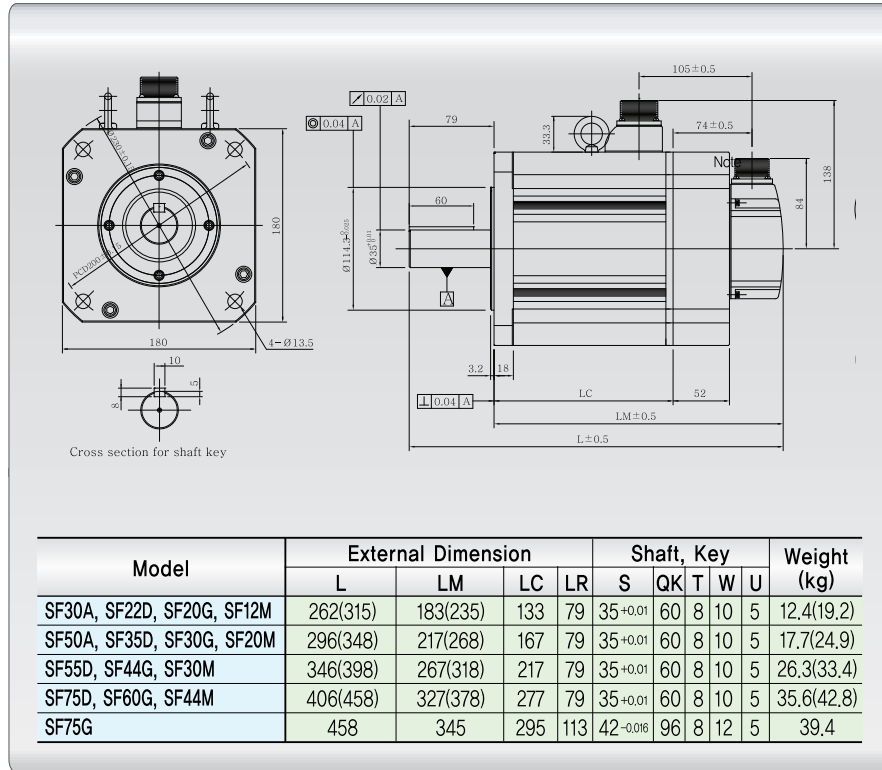


▶ SF Series | APM-SF30A, SF22D, SF20G, SF12M, APM-SF50A, SF35D, SF30G, SF20M, APM-SF55D, SF44G, SF30M, APM-SF75D, SF60G, SF44M, APM-SF75G

▶ Plug Specification

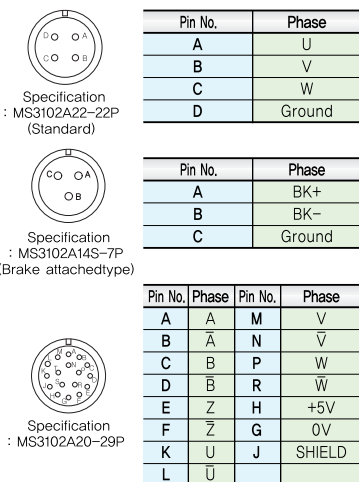


- Note
- 1) 아이볼트는 SF55D, SF44G, SF30M 이상의 모델에 적용됩니다.
 - 2) Use DC24V for brake input supply depending on Brake specification
 - 3) The dimension in () is for Brake attached motor

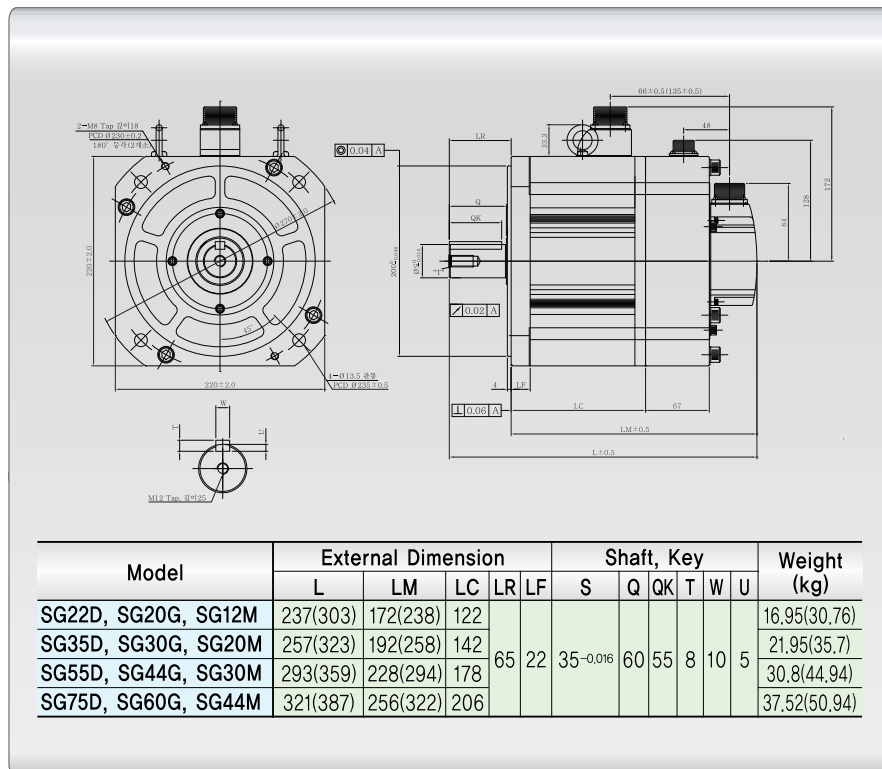


▶ SG Series | APM-SG22D, SG20G, SG12M, APM-SG35D, SG30G, SG20M, APM-SG55D, SG44G, SG30M, APM-SG75D, SG60G, SG44M

▶ Plug Specification



- Note
- 1) Use DC90V for brake input supply depending on Brake specification
 - 2) The dimension in () is for Brake attached motor



AC SERVO SYSTEM

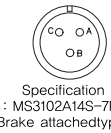
Servo Motor Dimension

SG Series | APM-SG110D, SG85G, SG60M, APM-SG110G, APM-SG150G

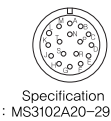
Plug Specification



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

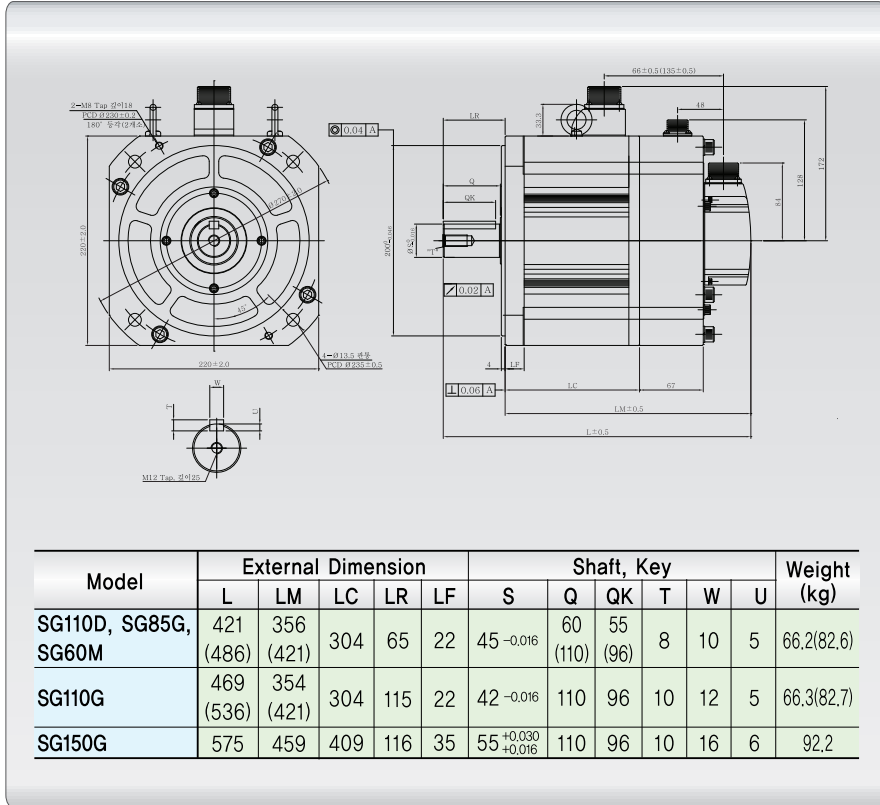


Pin No.	Phase
A	BK+
B	BK-
C	NC



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

Note
1) Use DC90V for brake input supply depending on Brake specification



SH, SJ Series | APM-SH220G, SHP220G, SH300G, SHP300G

Plug Specification

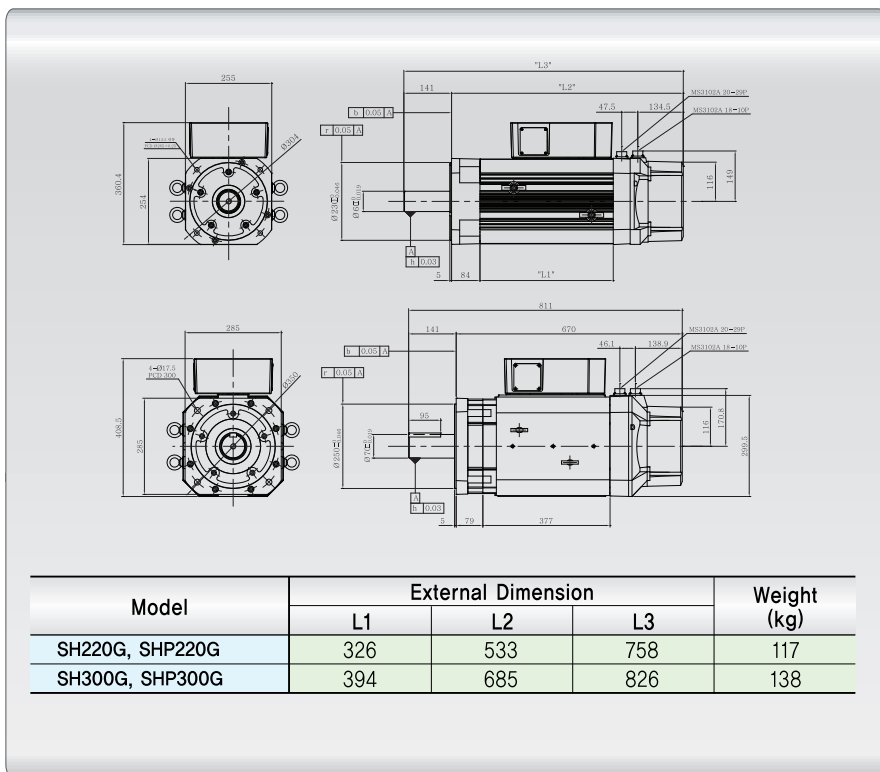


Pin No.	Phase
A	U
B	V
C	W
D	Ground




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

Note
Power Cable-Customer have to buy it in their market



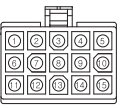
▶ HB Series(Hollow Shaft Type) | APM-HB01A, APM-HB02A, APM-HB04A

▶ Plug Specification



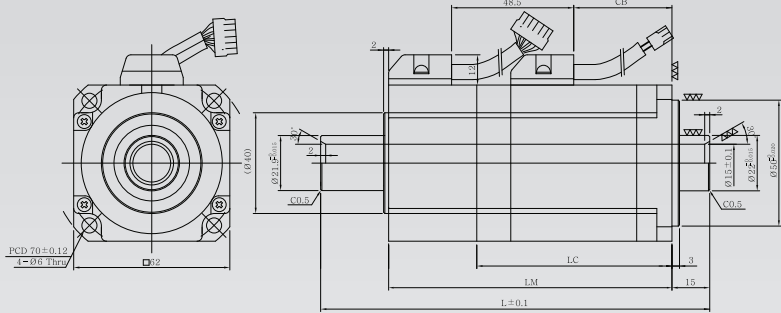
Pin No.	Color	신호명
1	Red	U
2	White	V
3	Black	W
4	Green	Ground

Plug Specification : 172167-1 (Made by APM)
(Power Connector Pin)



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


Plug Specification : 172171-1 (Made by APM)
(Encoder Connector Pin)



Model	External Dimension					Weight (kg)
	L	LM	LC	CB	Hollow Shaft Type	
HB01A	140.5	98.5	63.5	25	15	0.89
HB02A	154.5	112.5	77.5	39	15	1.16
HB04A	182.5	140.5	105.5	67	15	1.69


▶ HE Series(Hollow Shaft Type) | APM-HE09A, APM-HE15A

▶ Plug Specification



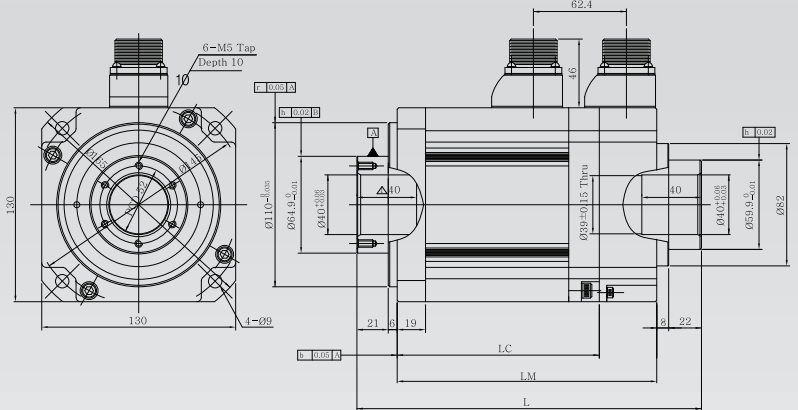
Pin No.	Phase
A	U
B	V
C	W
D	Ground

Specification : MS3102A20-4P (Standard)



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

Specification : MS3102A20-29P



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

Feature of Servo Drive

Standard Servo Drive APD-VS Series

- High efficiency power transformation technology realized by ASIC.
- Variety of communication options
- Convenient loader installation



Specification

Model (APD-VS)	R5	01	02	04	05	10	15	20	35	50	75	110	150	220	300	370	
Input Power supply (★Note)	3 phase AC200~230[V]+10%~15%, 50/60[Hz]																
Applicable Motor	Voltage Type	3 phase sine wave PWM driven Ac Servo Motor															
	Rated Current[A]	1.2	1.65	1.65	3.2	4.3	6.4	11	16	21	32	38	50	76	125	165	210
	MAx. Current[A]	3.6	4.95	4.95	9.6	12.9	19.2	33	48	63	96	102	125	190	250	370	420
Detector Type	Standard : Incremental 5V Line Drive 2000~10000P/rev Option : Absolute 11/13bit																
Speed Control Mode	Control function	Speed control range(1:10000), frequency Response(400Hz)														Response(200Hz)	
	Speed command	DC-10[V]~+10[V] (-Voltage: Reverse Rotation), Digital Command 7 Speeds.															
	Acceleration/Deceleration time	Linear, S Type Acceleration/Deceleration (0~100000[msec])															
	Speed variation ratio	± 0.01% or less(Load Variation 0~100%), ± 0.1% or less (Temperature 25 + - 10C)															
Position Control Mode	Input frequency	500[kpps]														400[kpps]	
	Pulse	A+B Phase, Forward+Reverse Pulse, Direction + Pulse(Line driver, Open collector)															
	Electronic gear ratio	Digital 4 speed, Available detail adjust															
Torque Control mode	Torque Command : DC -10 ~ +10V(- Voltage : Reverse), Linearity is less than 4%														Linearity is less than 2%		
Braking Type	Generative Brake, regenerative Brake														Regenerative Brake		
Ambient Environment	Operating Temp. : 0~50[°C], Storage Temp. : -20~+80[°C], Humidity : Less than 90(Avoid condensation)																

Note 1) Single-phase AC220 ~230V may be used : However, the output may be lower than the rating.
(the use of single-phase AC 220~230V for 500W and lower drive is acceptable)

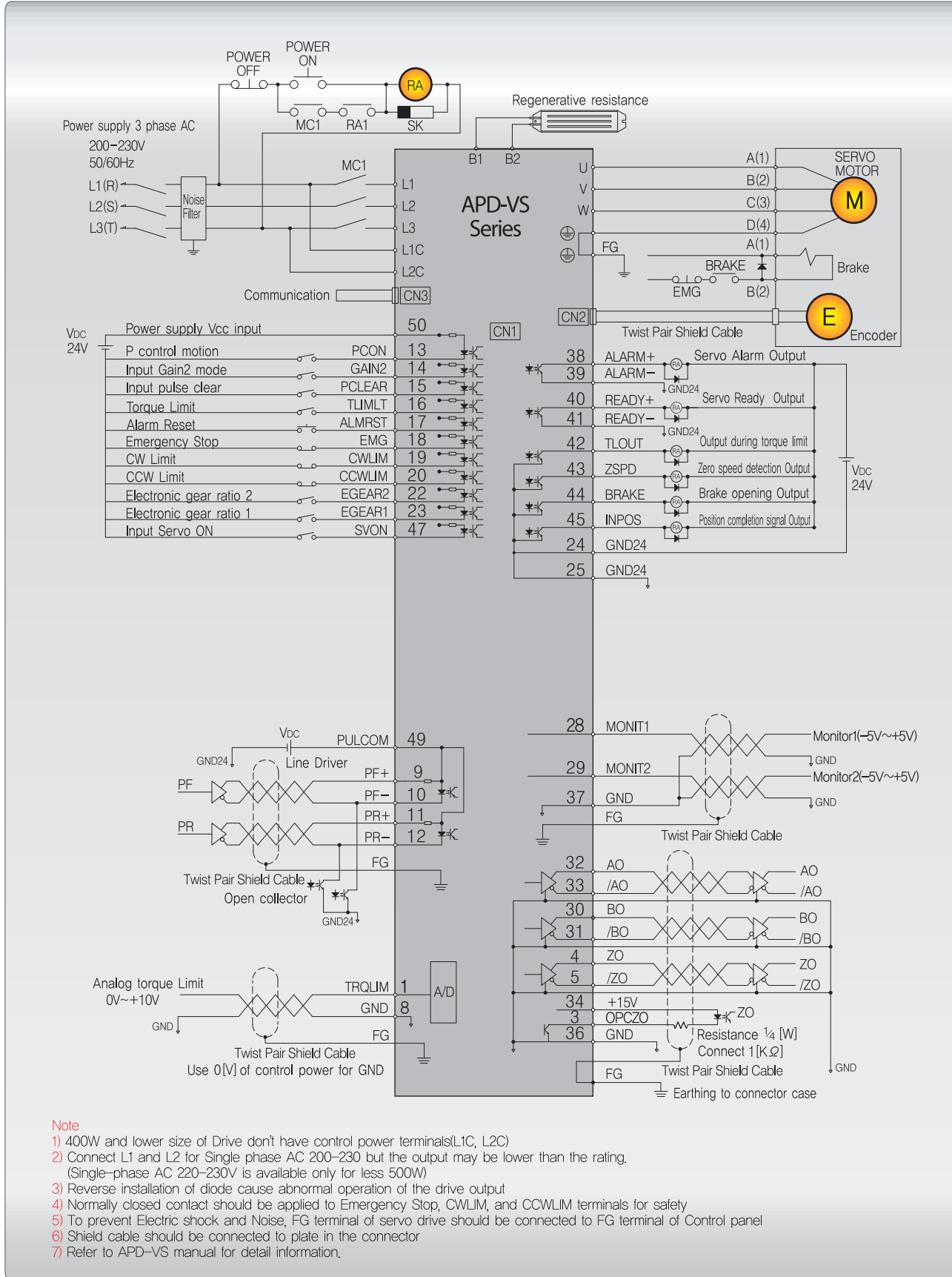
APD-VP Series Ratings and Characteristics

Model (APD-VP)	R5	01	02	04	05	10	15	20	35	50	75	110	150	220	300	370	
Input Power supply (★Note)	3 phase AC200~230[V]+10%~15%, 50/60[Hz]																
Applicable Motor	Voltage Type	3 phase sine wave PWM driven AC Servo Motor															
	Rated Current[A]	1.2	1.65	1.65	3.2	4.3	6.4	11	16	21	32	38	50	76	125	165	210
	MAx. Current[A]	3.6	4.95	4.95	9.6	12.9	19.2	33	48	63	96	102	125	190	250	370	420
Detector Type	Standard : Incremental 5V Line Drive 2000~10000P/rev Option : Absolute 11/13bit																
Setting Up Position Coordinates	Set up Max. 64 point by input contacts, set up 6-digits of position, 2-digits of speed by digital switch																
External Input / Output	Input / Output Contacts	Input : 20 points, Output : 9 points															
	Position Pulse Input	Maximum input frequency : 500[kpps]														400[kpps]	
		Input system : A+B Phase, Forward+Reverse Pulse, Direction+Pulse(Line Drive, Open collection)															
	Analog Input	Maximum 4 Channels, DC-10~+10[V]															
	Analog Output	Maximum 2 Channels, DC0~5[V]															
Encoder Output	A, B and Z Phase, 5V Line Driver, 1/1~1/16 frequency deviding possible.																
Bracking System	Power Generated Braking, Regenerated Braking														Regenerated Braking		
Ambient Environment	Operating Temp. : 0~50[°C], Storage Temp. : -20~+80[°C], Humidity : less than 90[%]																

Note 1) Single-phase AC200 ~230[V] may be used : However, the output may be lower than the rating.

VS Drive Connection Diagrams

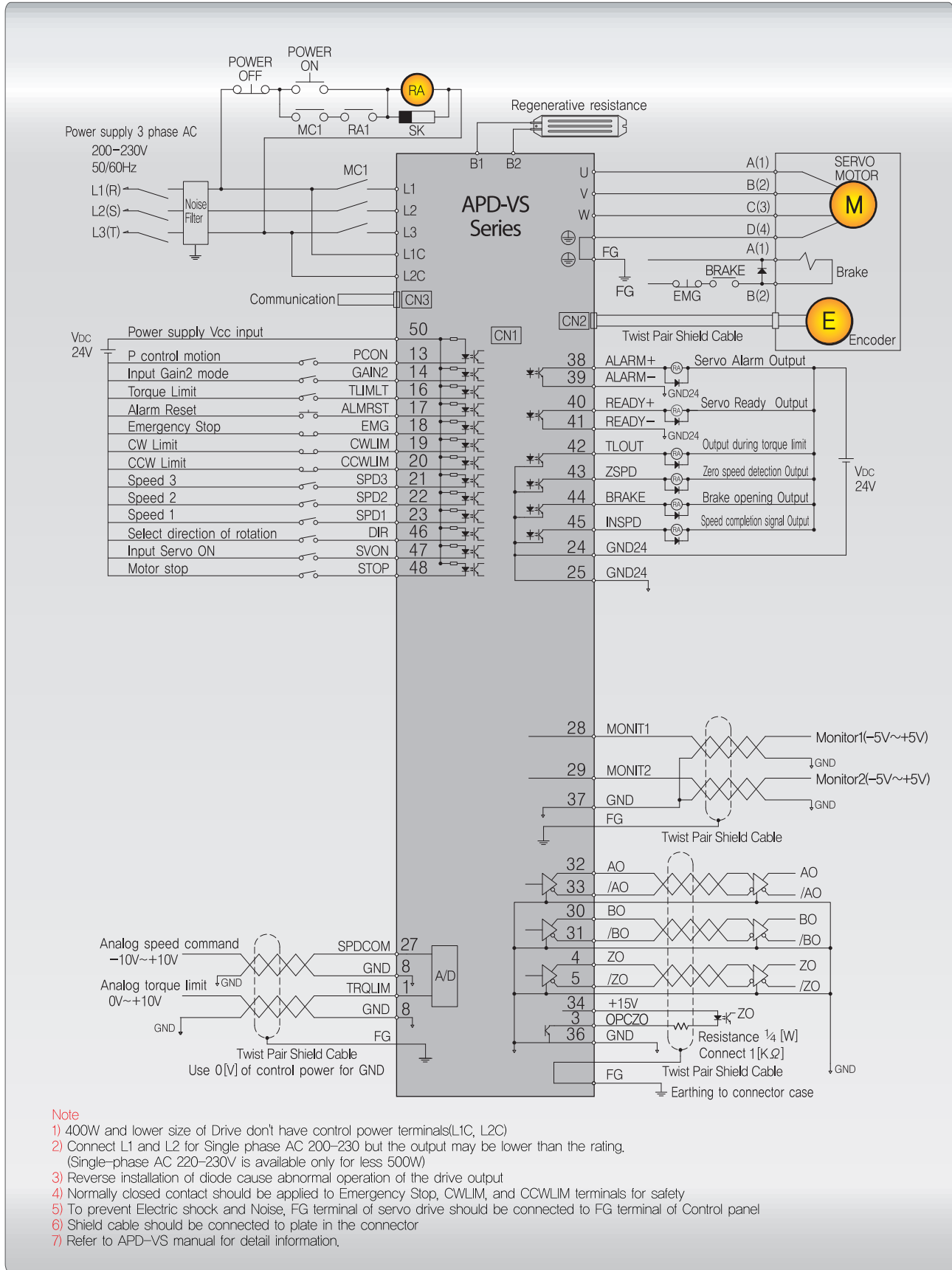
▶ APD-VS Series : Position operating mode



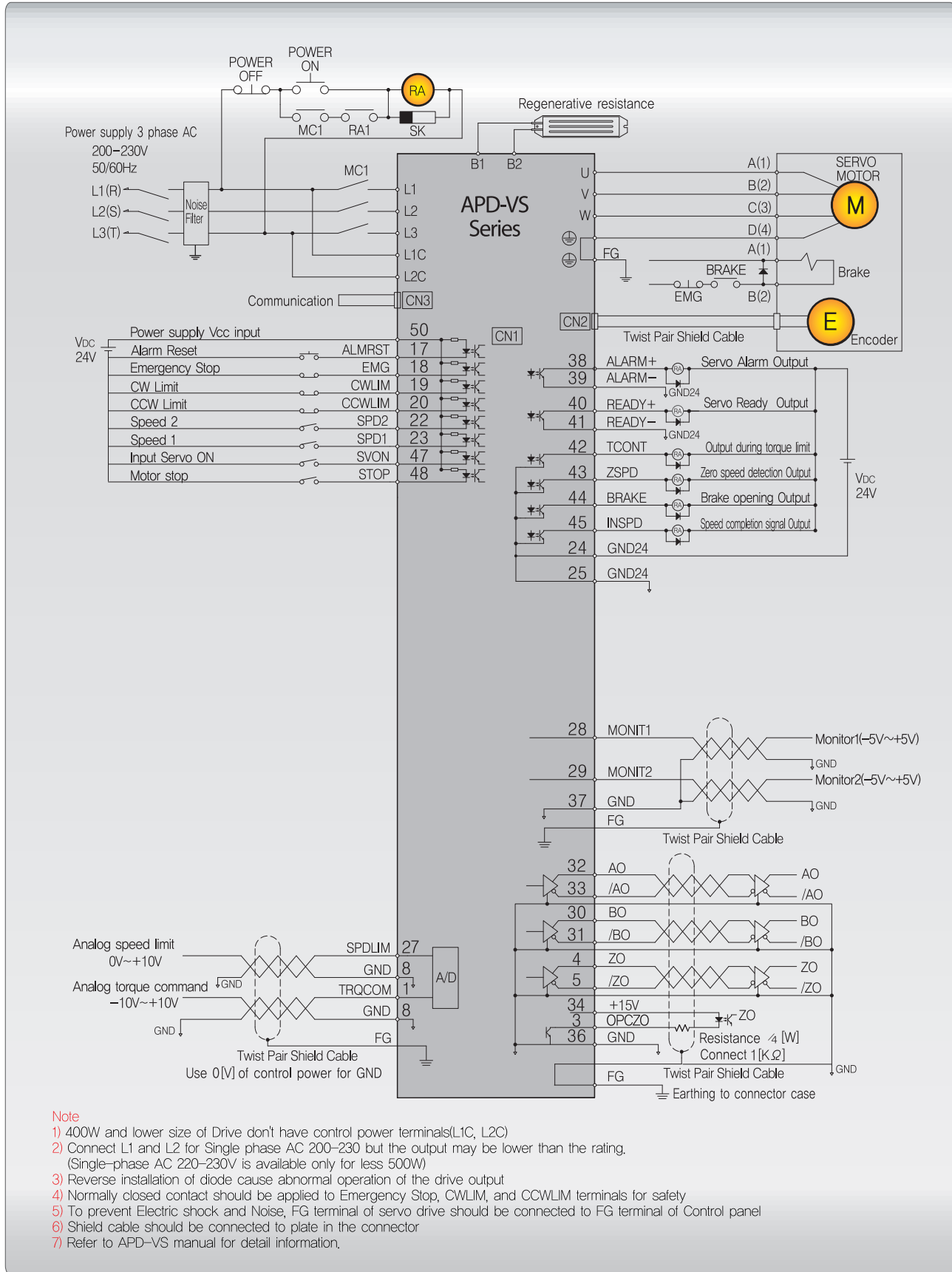
Note

- 1) 400W and lower size of Drive don't have control power terminals(L1C, L2C)
- 2) Connect L1 and L2 for Single phase AC 200-230 but the output may be lower than the rating.
(Single-phase AC 220-230V is available only for less 500W)
- 3) Reverse installation of diode cause abnormal operation of the drive output
- 4) Normally closed contact should be applied to Emergency Stop, CWLIM, and CCWLIM terminals for safety
- 5) To prevent Electric shock and Noise, FG terminal of servo drive should be connected to FG terminal of Control panel
- 6) Shield cable should be connected to plate in the connector
- 7) Refer to APD-VS manual for detail information.

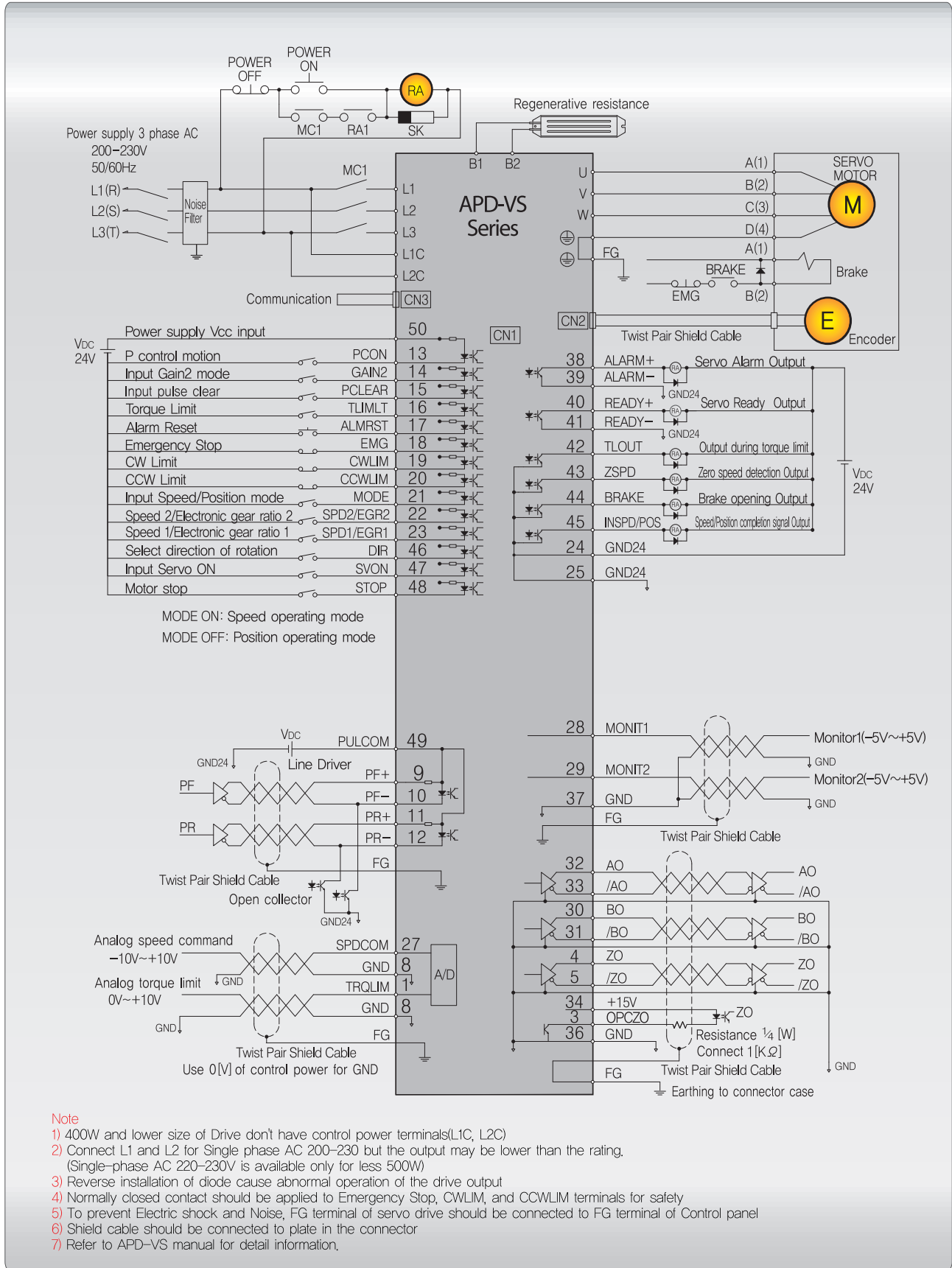
APD-VS Series : Speed operating mode



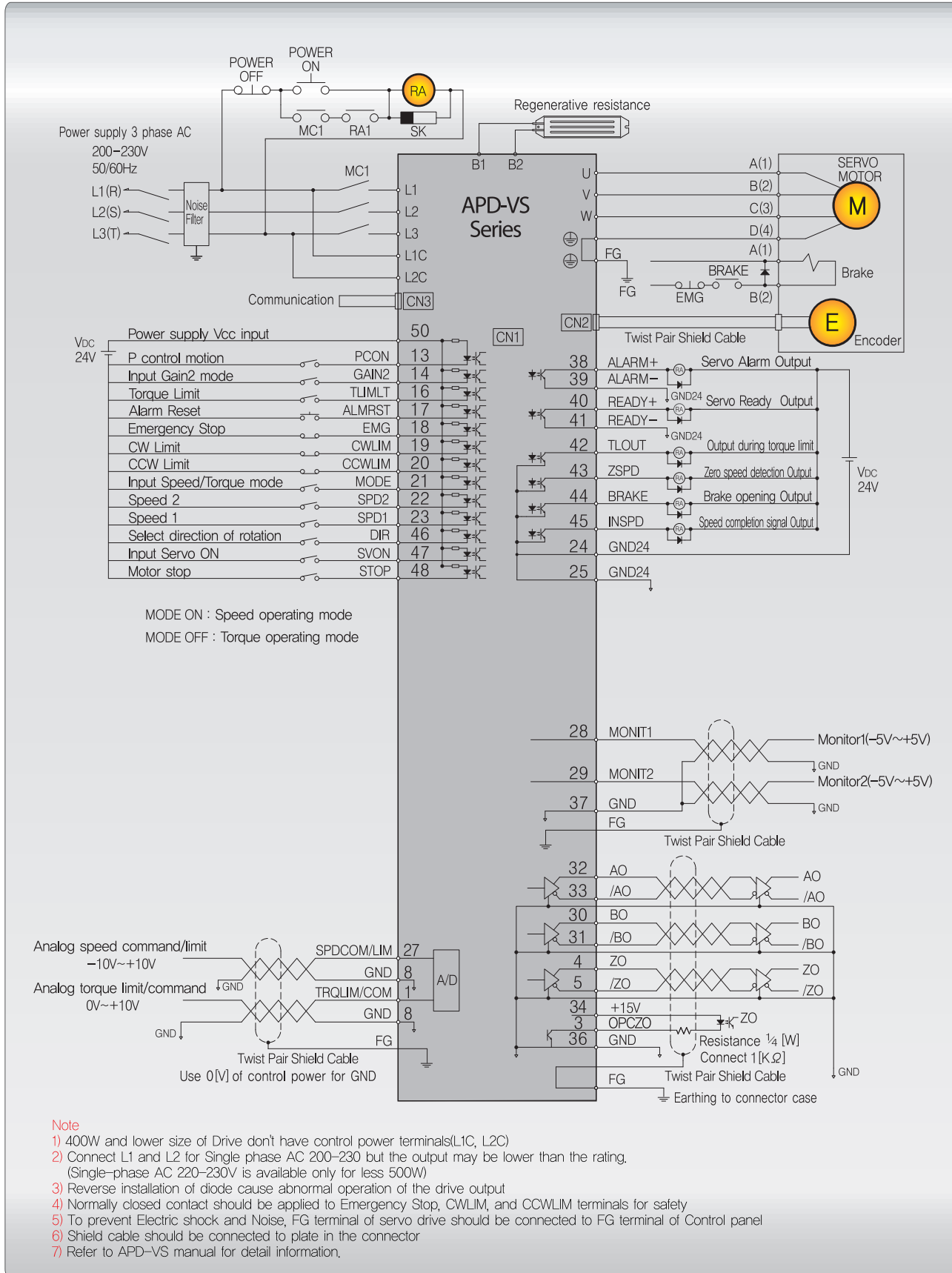
▶ APD-VS Series : Torque operating mode



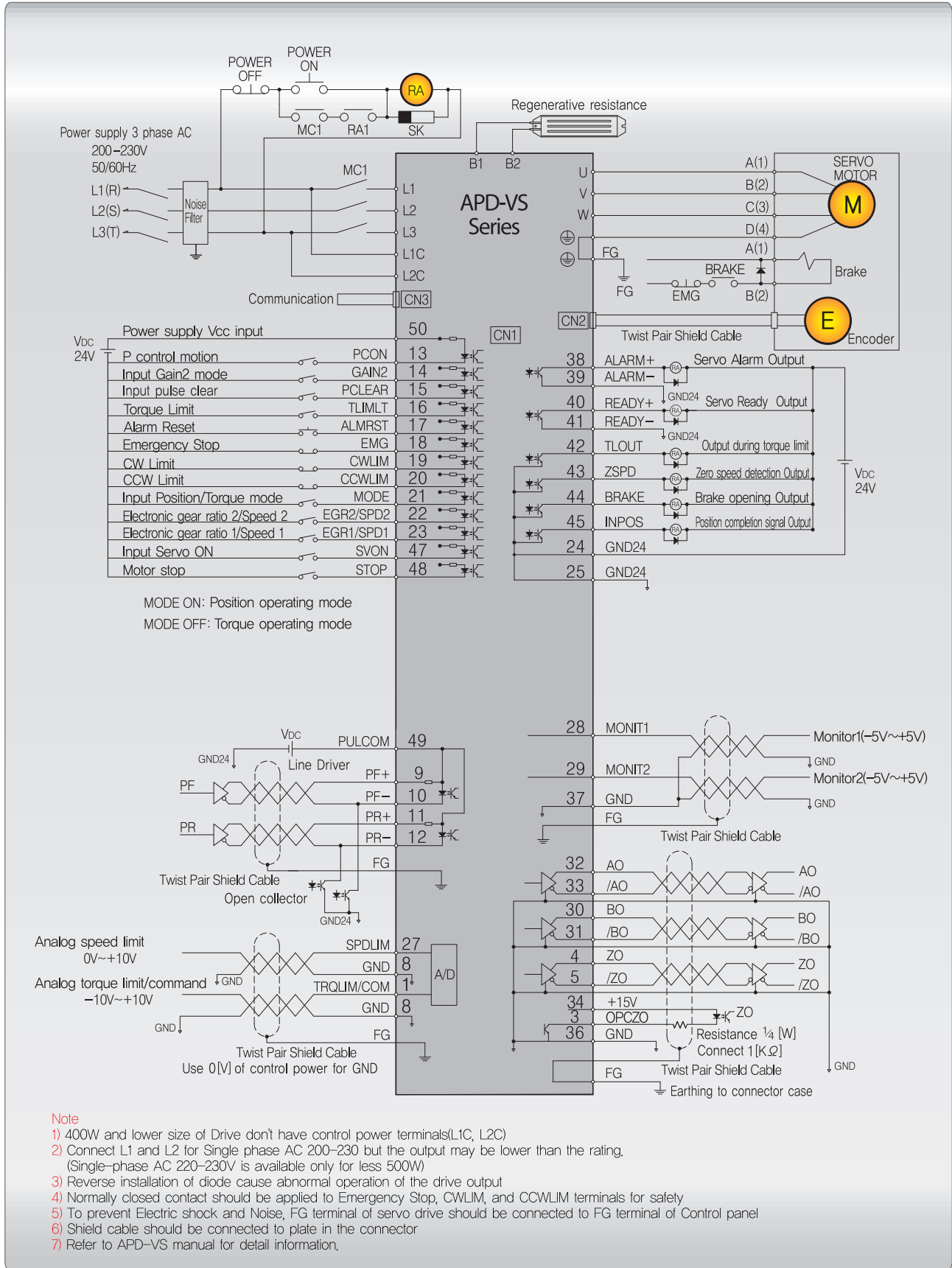
▶ APD-VS Series : Speed/Position operating mode



▶ APD-VS Series : Speed/Torque operating mode

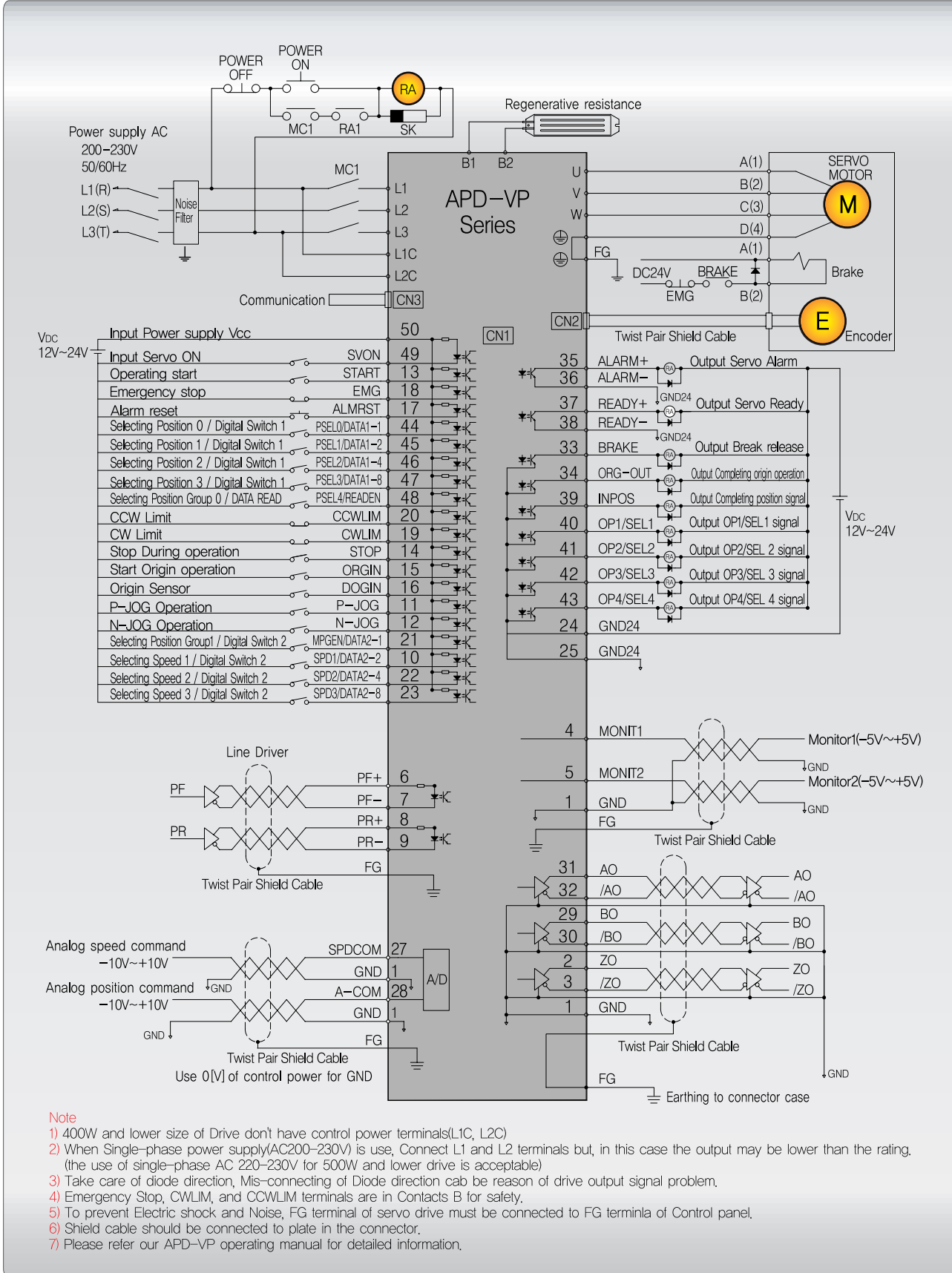


▶ APD-VS Series : Position/Torque operating mode



VP Drive Connection Diagrams

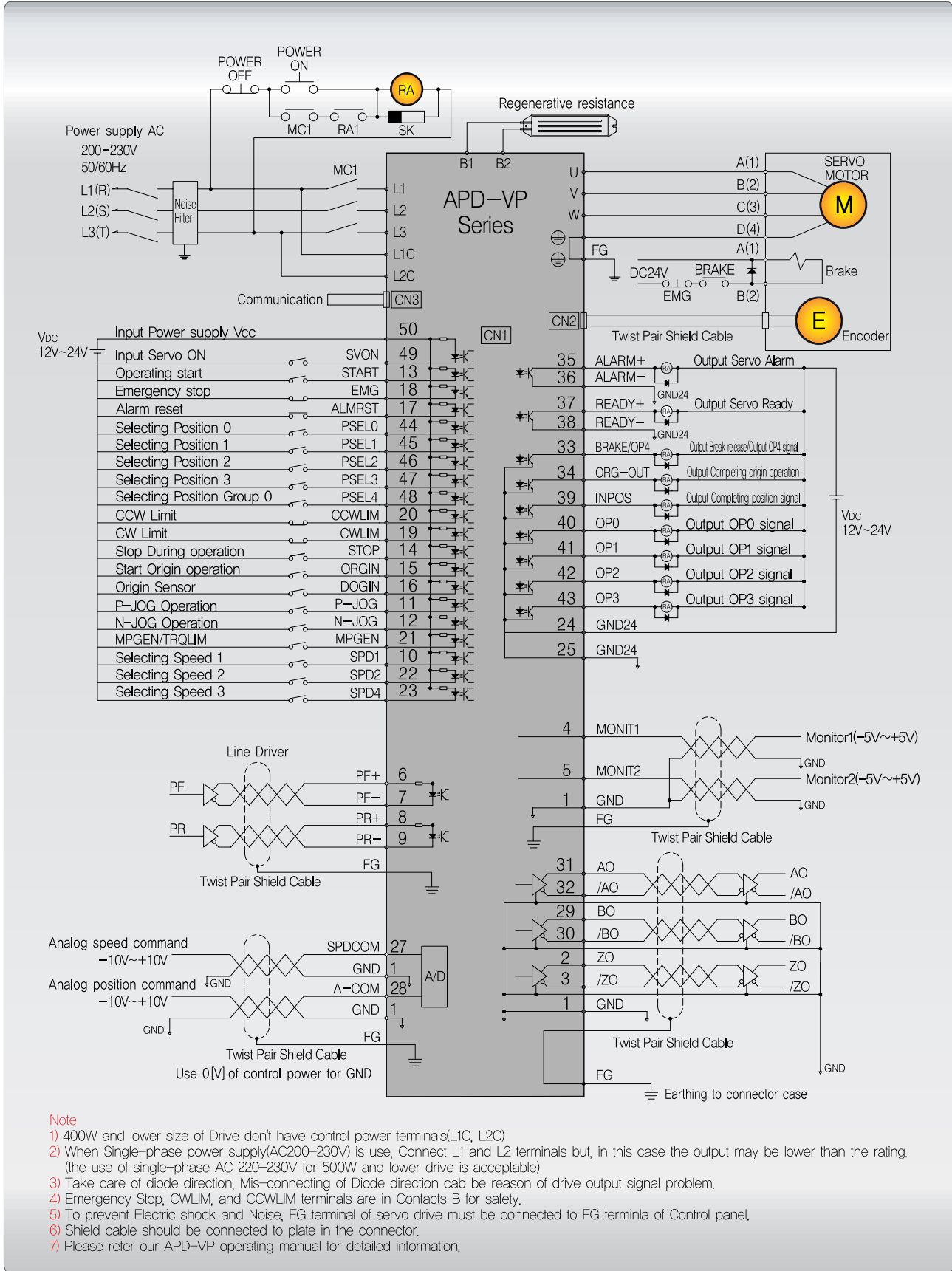
▶ APD-VP Series : Linear coordinates position operation type(VP-1)



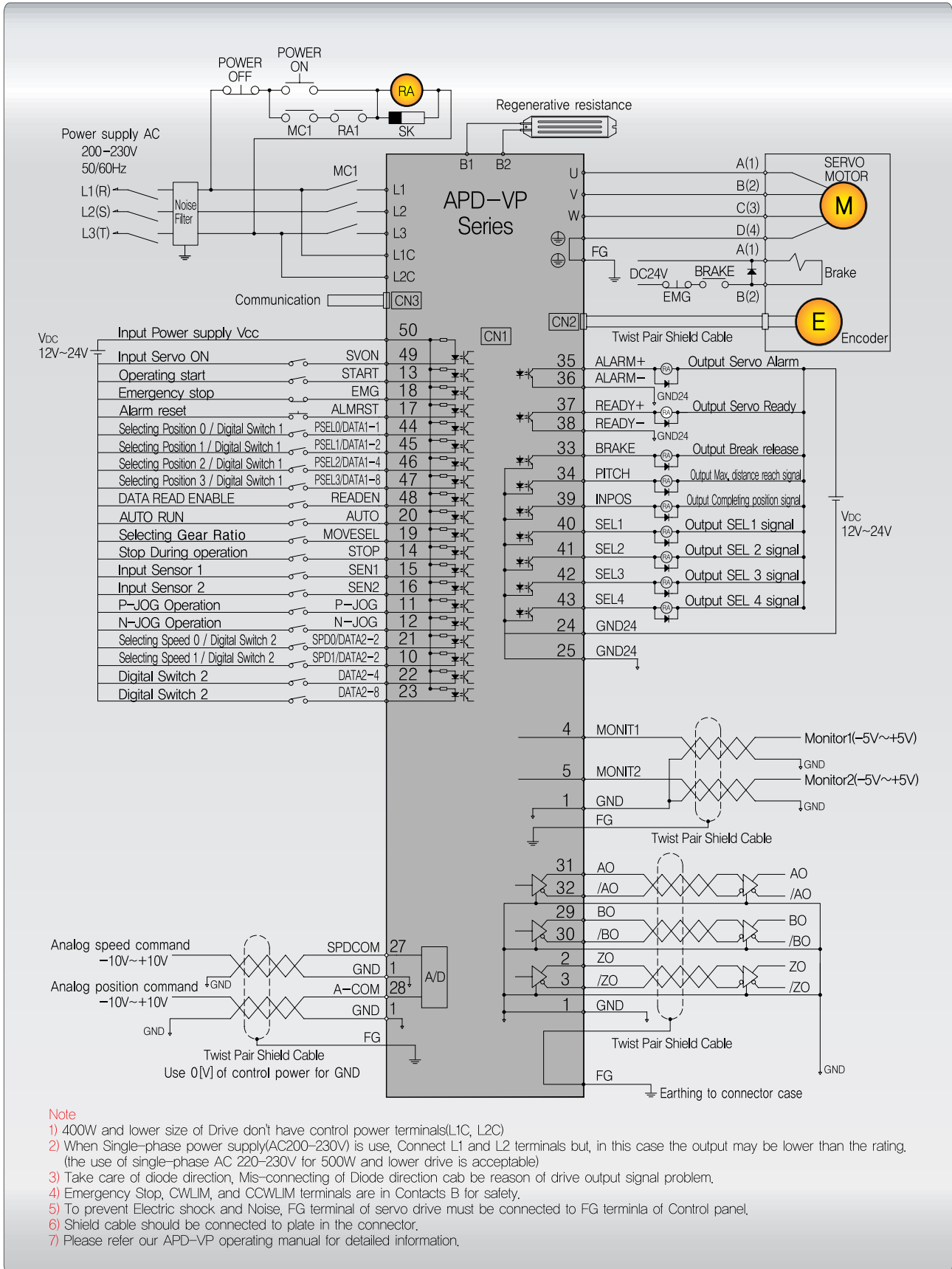
AC SERVO SYSTEM

VP Drive Connection Diagrams

APD-VP Series : Rotary coordinates position operation type(VP-2)



▶ APD-VP Series : Position operation type after feeder and Sensor(VP-3)

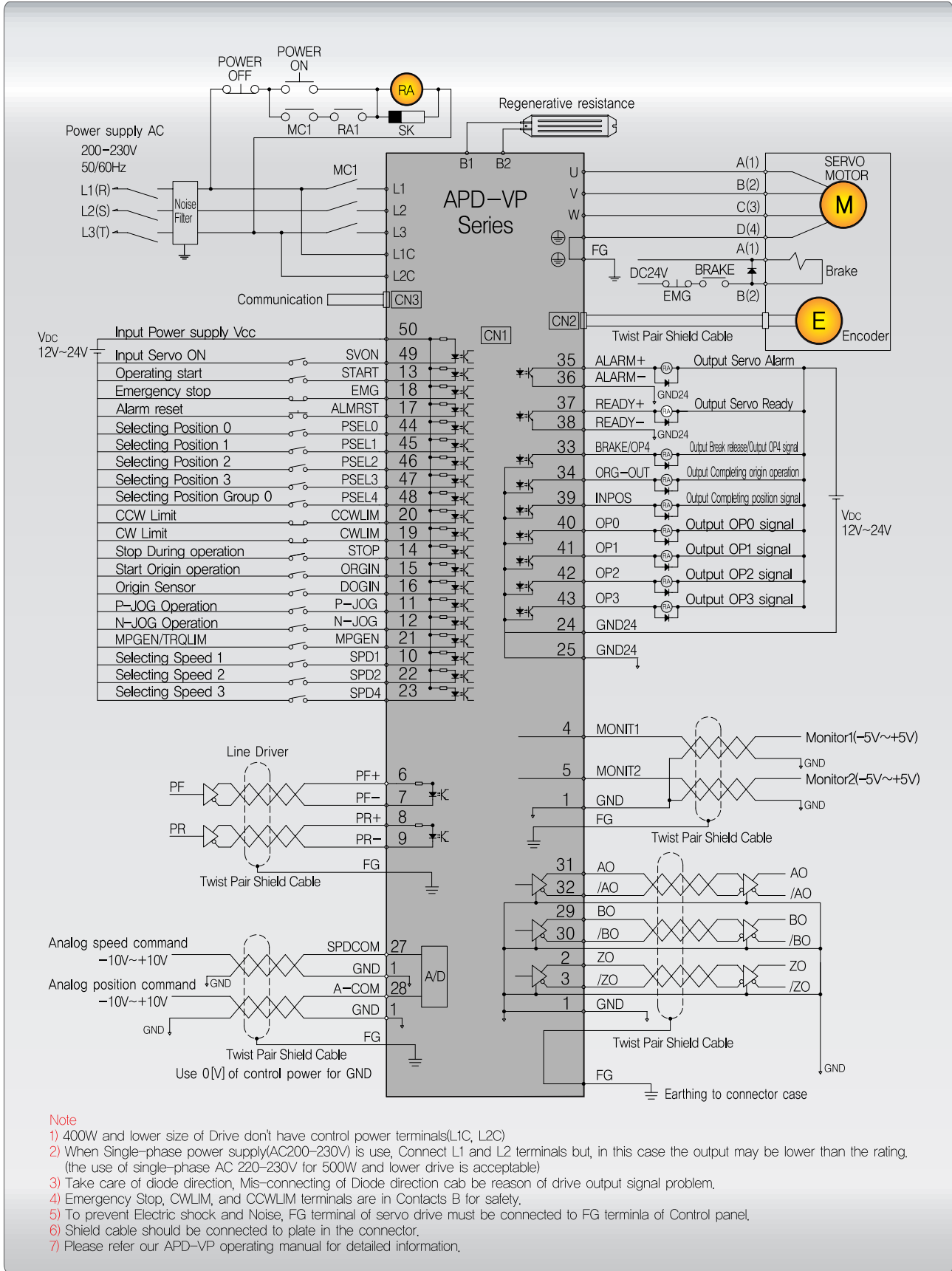


- Note**
- 1) 400W and lower size of Drive don't have control power terminals(L1C, L2C)
 - 2) When Single-phase power supply(AC200-230V) is use, Connect L1 and L2 terminals but, in this case the output may be lower than the rating. (the use of single-phase AC 220-230V for 500W and lower drive is acceptable)
 - 3) Take care of diode direction, Mis-connecting of Diode direction cab be reason of drive output signal problem.
 - 4) Emergency Stop, CWLIM, and CCW LIM terminals are in Contacts B for safety.
 - 5) To prevent Electric shock and Noise, FG terminal of servo drive must be connected to FG terminla of Control panel.
 - 6) Shield cable should be connected to plate in the connector.
 - 7) Please refer our APD-VP operating manual for detailed information.

AC SERVO SYSTEM

VP Drive Connection Diagrams

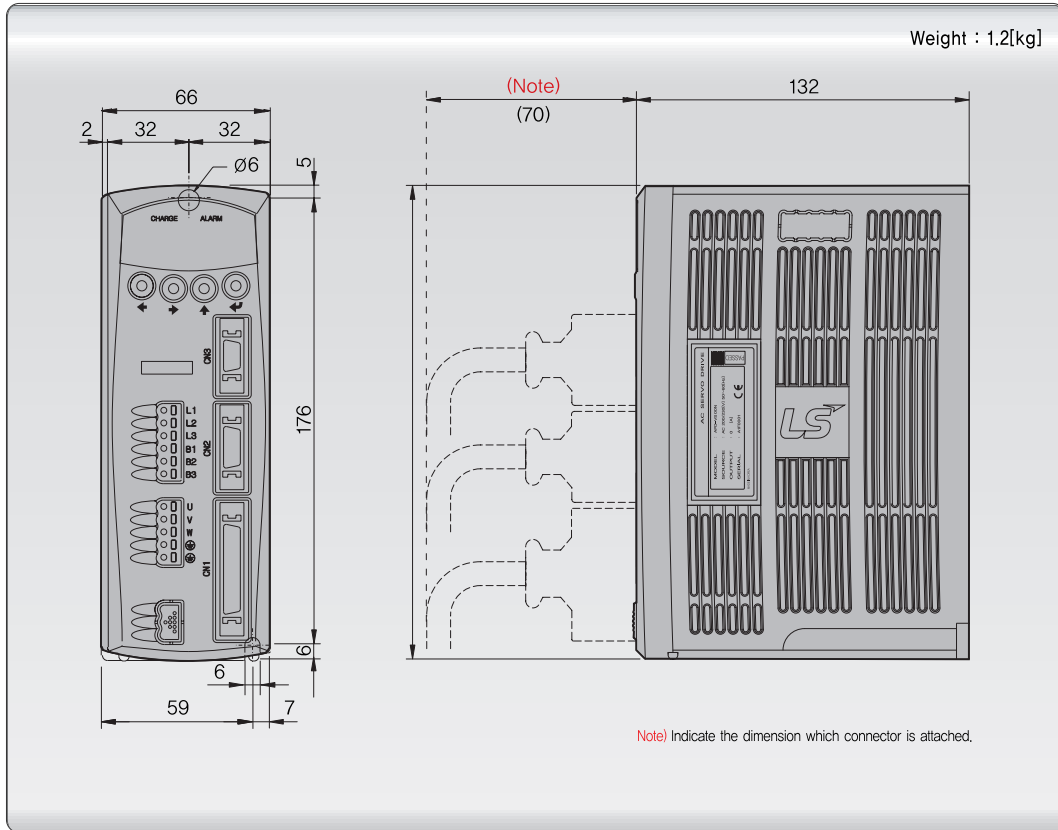
APD-VP Series : Program operation type(VP-5)



Servo Drive Dimension

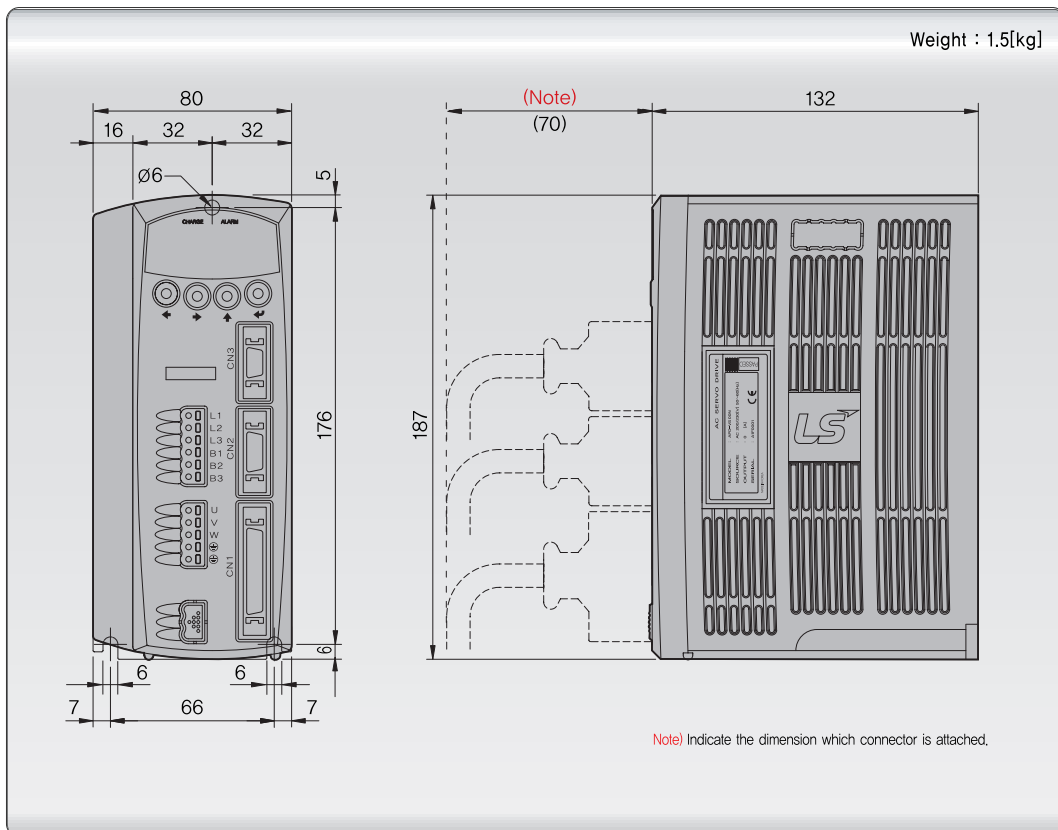
AC Servo System ▶

▶ 200W and Below ▶ APDI VSR5N, VS01N, VS02N



▶ 400W

▶ APD I VS04N

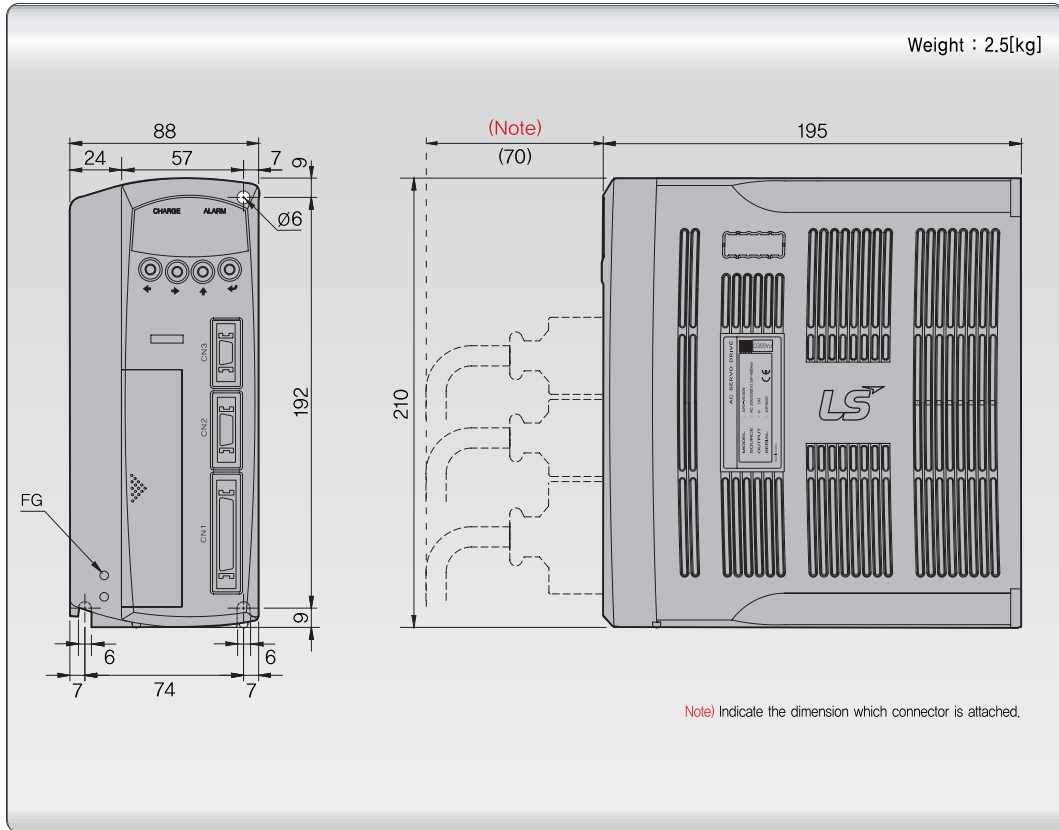


AC SERVO SYSTEM

Servo Drive Dimension

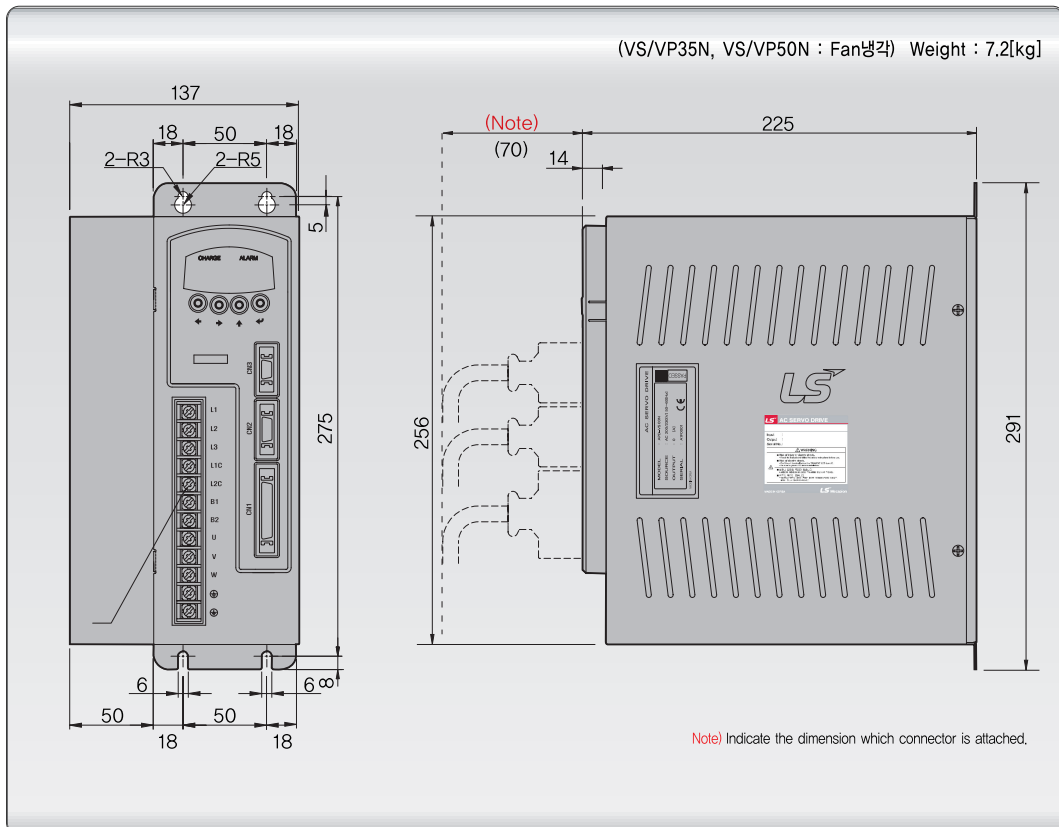
500W~1kW

APD I VS05N, VS10N



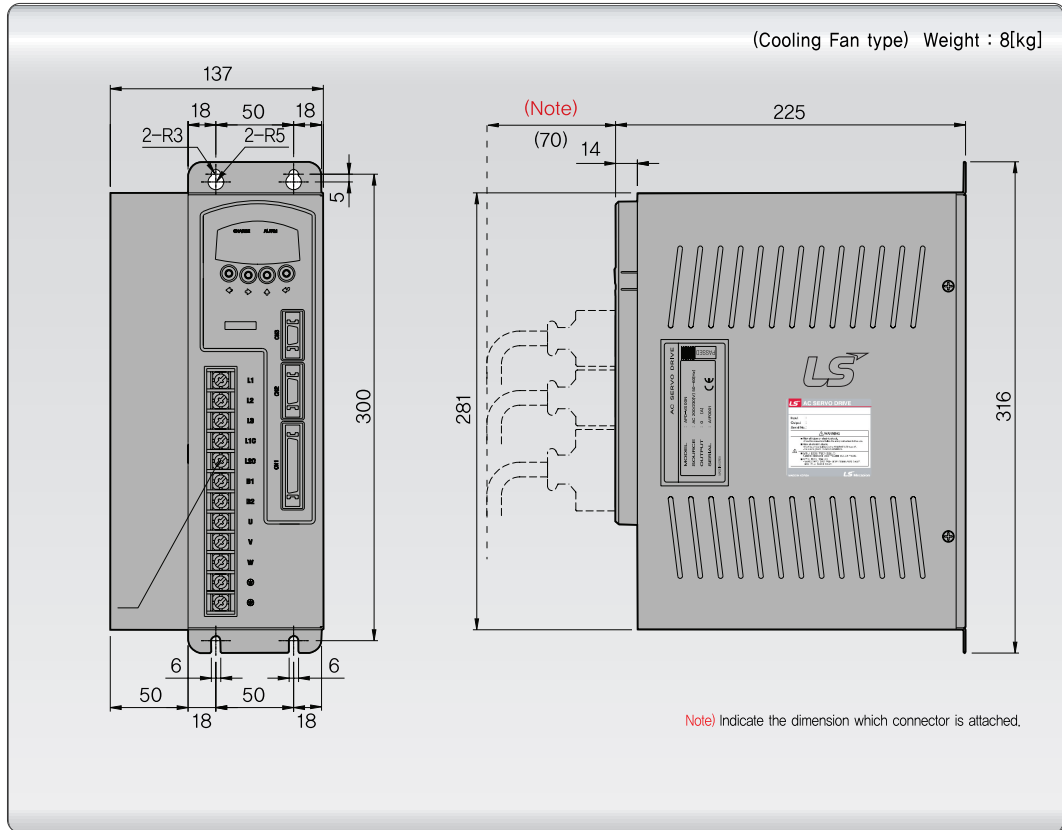
1.5kW~5kW

APD I VS15N, VS20N, VS35N, VS50N



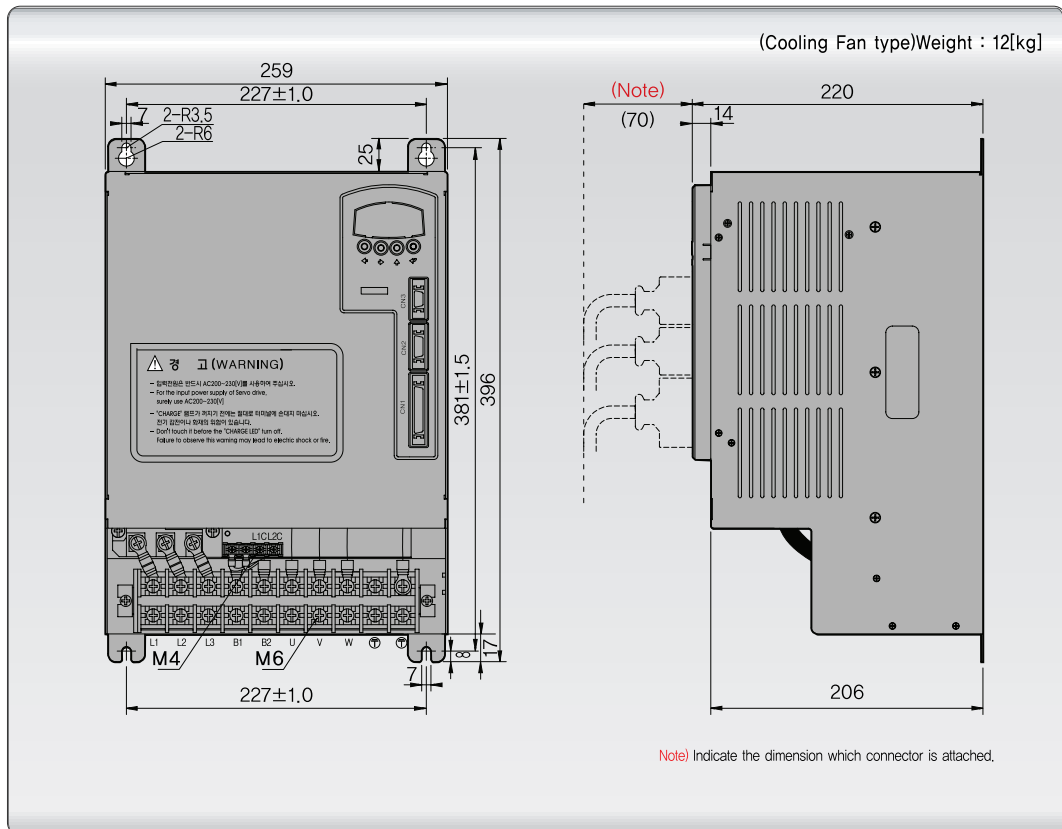
7.5kW

APD I VS75N



11kW

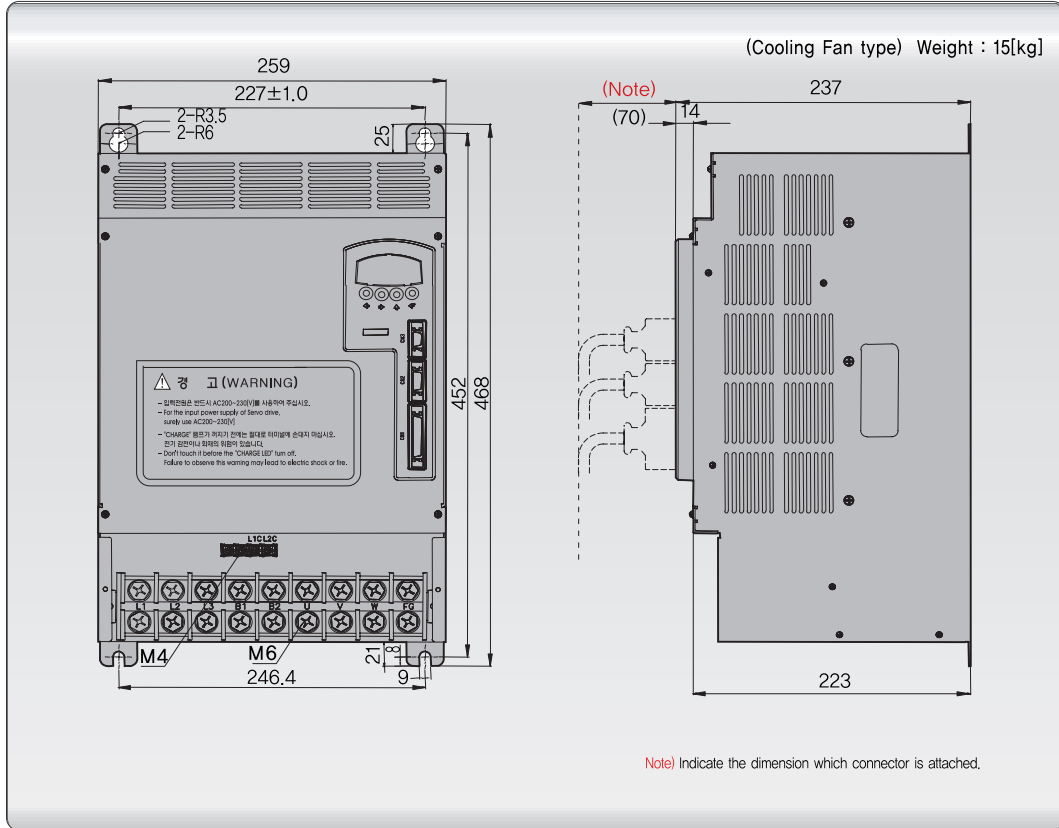
APD I VS110N



Servo Drive Dimension

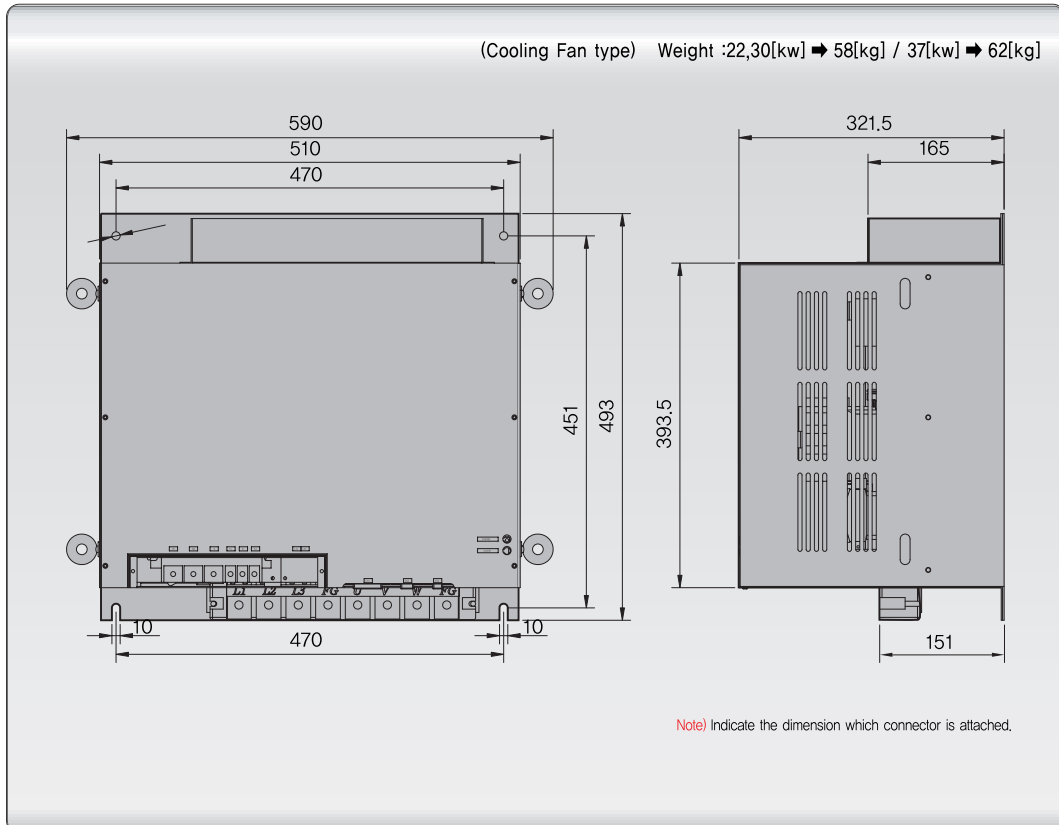
15kW

APD I VS150N



22kW, 30kW, 37kW

APD I VS220N, 300N, 370N

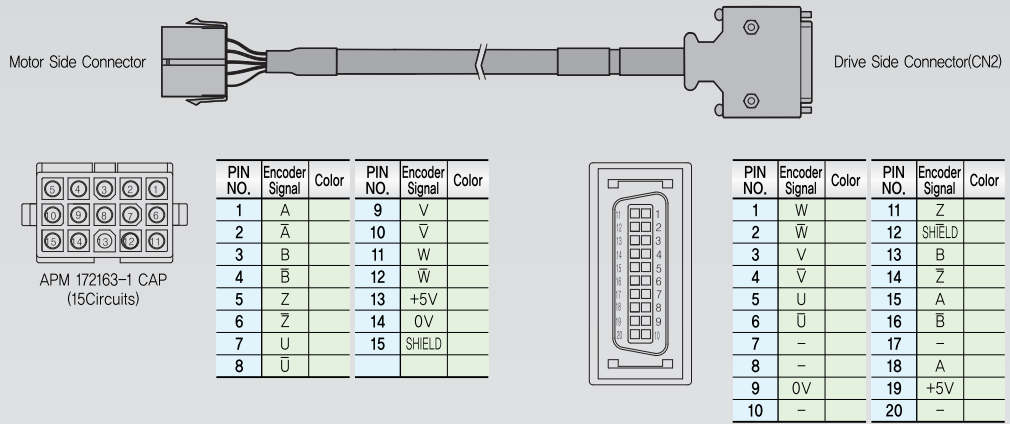


Options (Cable)

Incremental Encoder Cable

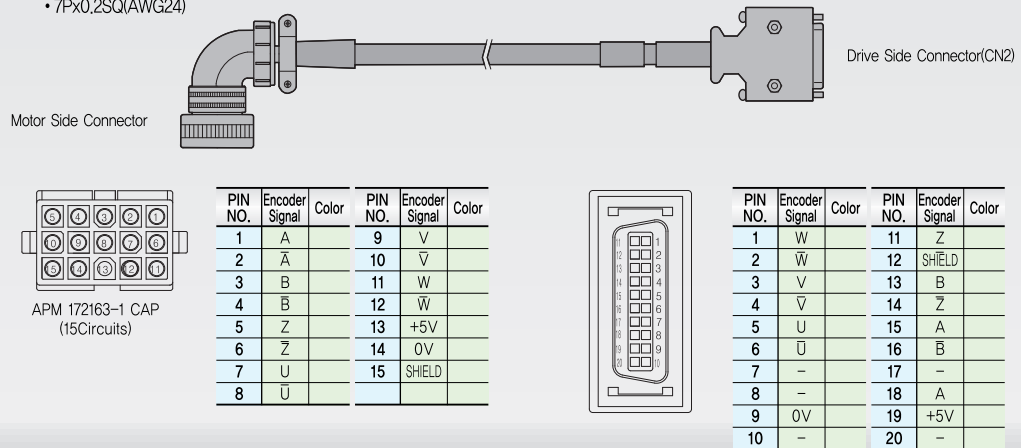
- ▶ Model (★Note1) : APC - E□□□AS
- ▶ Applicable Motor : APM-SA Series, APM-SB Series, APM-SC Series, APM-HB Series
- ▶ Applicable Drive : APD-VS Series

1. Motor Side Connector
 - CAP (15 Position) : 172163-1(Made by APM) • SOCKET : 170361-1(Made by APM)
2. Drive Side Connector(CN2)
 - CASE : 10320-52A0-008(Made by APM) • CONNECTOR : 10120-3000VE(Made by APM)
3. Cable
 - 7P×0.2SQ(AWG24)



- ▶ Model (★Note1) : APC-E□□□BS
- ▶ Applicable Motor : APM-SE Series, APM-SF Series, APM-SG Series, APM-SH Series, APM-SJ Series, APM-HE Series
- ▶ Applicable Drive : APD-VS Series

1. Motor side connector (MS:Military standard)
 - PLUG : MS3108A20-29S
2. Drive Side Connector (CN2)
 - CASE : 10320-52A0-008(Made by APM) • CONNECTOR : 10120-3000VE(Made by APM)
3. Cable
 - 7P×0.2SQ(AWG24)



Note1) □□□ of model indicates the cable type and length

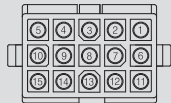
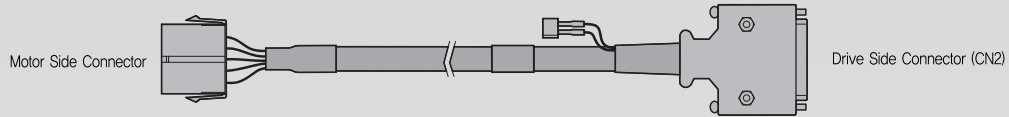
Standard Cable Length (m)	3	5	10	20
Robotic Cable	F03	F05	F10	F20
General Cable	N03	N05	N10	N20

Options (Cable)

▣ Absolute Encoder Cable

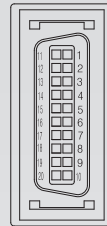
- ▣ Model (★Note1) : APC-□□□□AA
- ▣ Applicable Motor : APM-SB Series, APM-SC Series
- ▣ Applicable Drive : APD-VS Series

1. Motor Side Connector
 - CAP 사양(15 Position) : 172163-1(Made by APM) • SOCKET : 170361-1(Made by APM)
2. Drive Side Connector(CN2)
 - CASE : 10320-52A0-008(Made by 3M) • CONNECTOR : 10120-3000VE(Made by 3M)
3. Cable
 - 7P×0.2SQ(AWG24)
4. BATTERY CONNECTOR
 - 5267-02A(Made by MOLEX)



APM 172163-1 CAP
(15Circuits)

PIN NO.	Encoder Signal	PIN NO.	Encoder Signal
1	A	9	BATTERY
2	Ā	10	BATTERY 0V
3	B	11	RX
4	B̄	12	RĀ
5	Z	13	+5V
6	Z̄	14	0V
7	CLR	15	SHIELD
8	FG		

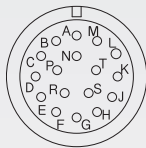
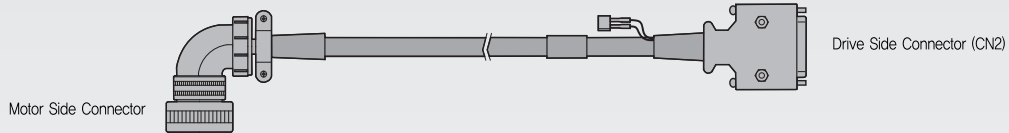


3M 10320-52A0-008
(15 Circuits)

PIN NO.	Encoder Signal	PIN NO.	Encoder Signal
1	RX	11	Z
2	RĀ	12	SHIELD, FG
3	-	13	B
4	-	14	Z̄
5	-	15	A
6	-	16	B̄
7	-	17	-
8	-	18	A
9	0V	19	+5V
10	-	20	CLR

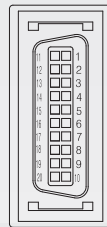
- ▣ Model (★Note1) : APC-□□□□BA
- ▣ Applicable Motor : APM-SE Series, APM-SF Series, APM-SG Series
- ▣ Applicable Drive : APD-VS Series

1. Motor Side Connector (MS : Military Standard)
 - PLUG : MS3108A20-29S
2. Drive Side Connector(CN2)
 - CASE : 10320-52A0-008(Made by 3M) • CONNECTOR : 10120-3000VE(Made by 3M)
3. Cable
 - 7P×0.2SQ(AWG24)
4. BATTERY CONNECTOR
 - 5267-02A(Made by MOLEX)



MS3108B20-29S
(15Circuits)

PIN NO.	Encoder Signal	PIN NO.	Encoder Signal
A	A	M	CLR
B	Ā	N	FG
C	B	P	RX
D	B̄	R	RĀ
E	Z	H	+5V
F	Z̄	G	0V
K	BATTERY	J	SHIELD
L	BATTERY 0V		



3M 10320-52A0-008
(15 Circuits)

PIN NO.	Encoder Signal	PIN NO.	Encoder Signal
1	RX	11	Z
2	RĀ	12	SHIELD, FG
3	-	13	B
4	-	14	Z̄
5	-	15	A
6	-	16	B̄
7	-	17	-
8	-	18	A
9	0V	19	+5V
10	-	20	CLR

Note1) □□□ of model indicates the cable type and length

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

Power cable

- Model (★Note1) : APC - □□□□CS
- Applicable Motor : APM-SA Series, APM-SB Series, APM-HB Series, APM-SC04A, SC06A, SC03D, SC05D
- Applicable Drive : APD-VS Series

Motor Side Connector

Drive Side Connector (CN2)

PIN NO.	Phase
1	U
2	V
3	W
4	Ground

APM 172159-1 CAP (4Circuits)

- Motor Side Connector
 - CAP(4 Position) : 172159-1(Made by APM)
 - SOCKET : 170362-1(Made by APM)
- Drive Side Connector (U,V,W,FG)
 - PIN : UA-F1512(Made by Suh-Il Electronic)
 - Compressor : UA-510A (Made by Suh-Il Electronic)
- Cable
 - 4Cx0.75SQ(AWG18)

- Model (★Note1) : APC - □□□□DS
- Applicable Motor : APM-SC08A, SC10A, SC06D, SC07D
- Applicable Drive : APD-VS Series

Motor Side Connector

Drive Side Connector (CN2)

PIN NO.	Phase
1	U
2	V
3	W
4	Ground

APM 172159-1 CAP (4Circuits)

- Motor Side Connector
 - CAP (4 Position) : 172159-1(Made by APM)
 - SOCKET : 170362-1(Made by AMP)
- Drive Side Connector (U,V,W,FG)
 - Connection terminals : 1.25x3(KET GP110012)
- Cable
 - 4Cx0.75SQ(AWG18)

- Model (★Note1) : APC - □□□□ES
- Applicable Motor : APM-SE Series, APM-HE Series
- Applicable Drive : APD-VS Series

Motor Side Connector

Drive Side Connector (CN2)

PIN NO.	Phase
A	U
B	V
C	W
D	Ground

MS3108B20-4S (4Circuits)

- Motor Side Connecto (MS: Military Standard)
 - PLUG : MS3108A20-4S
- Drive Side Connector (U,V,W,FG)
 - Connection terminals : 2.5x4(KET GP110721)
- Cable
 - 4Cx2.0SQ(AWG14)

Note) For drive side connector of APM-SE03M Series cable, UA-F1512 pin is to be applied

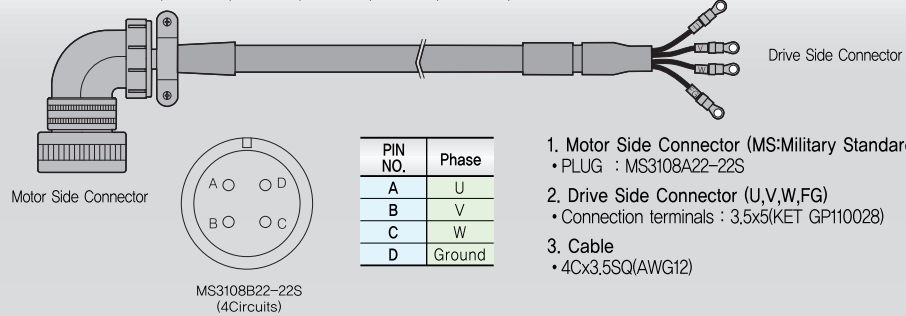
Note1) □□□ of model indicates the cable type and length

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

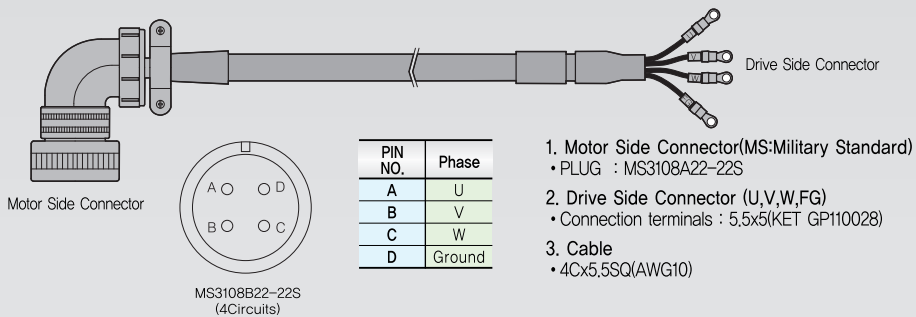
Options (Cable)

Power cable

- Model (★Note1) : APC-P□□□FS Applicable Drive : APD-VS/VN Series (VN : P□□□FSV)
- Applicable Motor : APM-SF30A, SF22D, SF35D, SF20G, SF30G, SF12M, SF20M, SF30M, SG22D, SG35D, SG20G, SG30G, SG12M, SG20M, SG30M



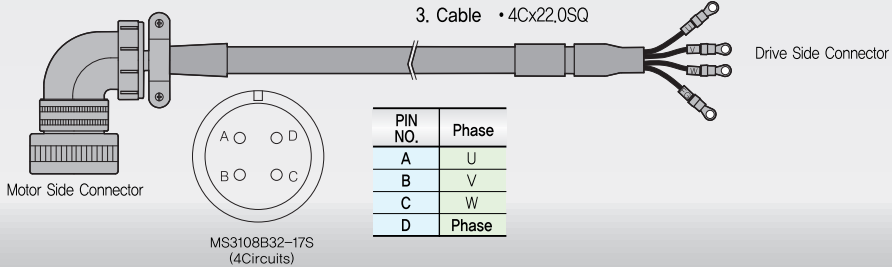
- Model (★Note1) : APC-P□□□GS
- Applicable Drive : APD-VS Series
- Applicable Motor : APM-SF50A, SF55D, SF75D, SF44G, SF60G, SF44M, SG55D, SG75D, SG44G, SG60G, SG44M



- Model (★Note1,2) : APC-P□□□RS
 - Applicable Drive : APD-VS Series
 - Applicable Motor : APM-SG110D, SG85G, SG60M, SF75G
- ★Note2
- Motor Side Connector (MS: Military Standard)
 - PLUG : MS3108A(MS3106B)32-17S
 - Drive Side Connector (U,V,W,FG)
 - Connection terminals : 8.0x8(KET GP140841)
 - Cable
 - 4Cx8.0SQ(AWG8)

- Model (★Note1,3) : APC-P□□□TS
 - Applicable Drive : APD-VS Series
 - Applicable Motor : APM-SG110G
- ★Note3
- Motor Side Connector (MS: Military Standard)
 - PLUG : MS3108A(MS3106B)32-17S
 - Drive Side Connector (U,V,W,FG)
 - Connection terminals : 14x8(KET GP140841)
 - Cable
 - 4Cx14.0SQ

- Model (★Note1,4) APC-P□□□SS
 - Applicable Drive : APD-VS Series
 - Applicable Motor : SG150G
- ★Note4
- Motor Side Connector (MS: Military Standard)
 - PLUG : MS3108A(MS3106B)32-17S
 - Drive Side Connector (U,V,W,FG)
 - Connection terminals : 22x8(KET GP140841)
 - Cable
 - 4Cx22.0SQ



Note1) □□□ of model indicates the cable type and length

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

▶ Fan Power Cable
(Using AP 25,28 in common)

▶ Model (★Note1) : General APC-PN□□HS / Robotic APC-PF□□HS
 ▶ Applicable Drive : APD-VS Series

Color	Phase
Red	U
Yellow	V
Black	W

1. Motor Side Connector (MS : military standard)
 • PLUE MS3108B 18-10S
 2. Cable
 • 3CX2.0SQ

▶ Power Cable (22,30kW)

▶ Model : General APC-PN□□QS

Color	Phase
Red	U
Yellow	V
Black	W

1. Motor Side Connector
 • Ring Terminal : 50x10s
 2. Cable
 • 50SQ 600V KIV

▶ Power Cable (37kW)

▶ Model : General APC-PN□□US

Color	Phase
Red	U
Yellow	V
Black	W

1. Motor Side Connector
 • Ring Terminal : 80x10s
 2. Cable
 • 75SQ 600V KIV

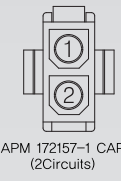
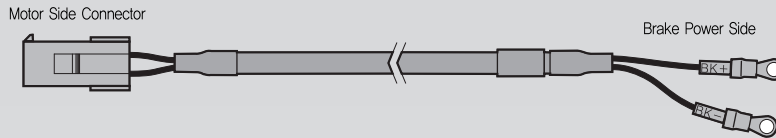
▶ Ground Cable

▶ Model : General APC-PN□□JS

1. Motor Side Connector
 • Ring Terminal : 16x10s
 2. Cable
 • 16SQ FR-GV

Brake cable

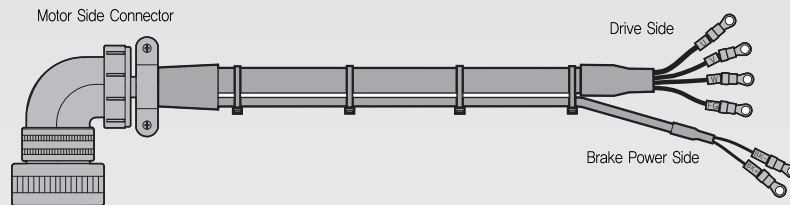
- Model (★Note1) : APC-P□□□KB
- Applicable Motor : APM-SA Series, APM-SB Series, APM-SC Series
- Applicable Drive : APD-VS Series



PIN NO.	Phase
A	U
B	V
C	W
D	Ground

1. Motor Side Connector (MS: Military Standard)
 - CAP (2 Position) : 172157-1(Made by APM)
 - SOCKET : 170362-1(Made by APM)
2. Brake Power Side
 - Connection terminals : 1.25x3(KET GP110012)
 - Cable : 2Cx0.75SQ(AWG18)

- Model (★Note1) : APC-P□□□MB
- Applicable Motor : APM-SE Series
- Applicable Drive : APD-VS Series



PIN NO.	Phase
A	U
B	V
C	W
D	Ground
E	BK+
F	BK-

1. Motor Side Connector (MS: Military Standard)
 - PLUG : MS3108A20-15S
2. Drive Side (U,V,W,FG)
 - Connection terminals : 2x4(KET GP110721)
 - Cable : 4Cx2.0SQ(AWG14)
3. Brake Power Side (+,-)
 - Connection terminals : 1.25x3(KET GP110012)
 - Cable : 2Cx0.75SQ(AWG18)

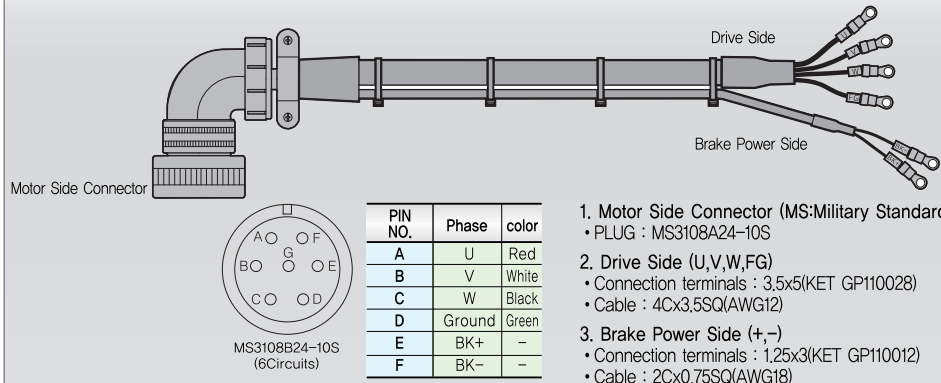
Note) For drive side connector of APM-SE03M Series cable, UA-F1512 pin is to be applied

Note1) □□□ of model indicates the cable type and length

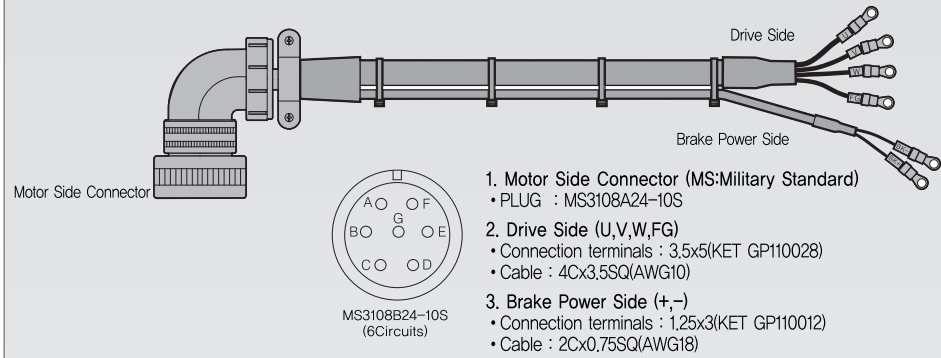
Standard Cable Length (m)	3	5	10	20
Robotic Cable	F03	F05	F10	F20
General Cable	N03	N05	N10	N20

▶ Brake cable

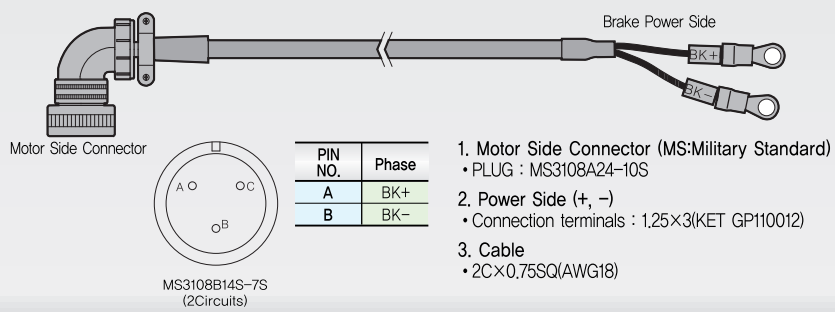
- ▶ Model (★Note1) : APC-P□□□NB
- ▶ Applicable Motor : APM-SF30A, SF22D, SF35D, SF20G, SF30G, SF12M, SF20M, SF30M
- ▶ Applicable Drive : APD-VS Series



- ▶ Model (★Note1) : APC-P□□□PB
- ▶ Applicable Motor : APM-SF50A, SF55D, SF75D, SF44G, SF60G, SF75G, SF44M
- ▶ Applicable Drive : APD-VS Series



- ▶ Model (★Note1) : APC-P□□□SB
- ▶ Applicable Motor : APM-SG Series
- ▶ Applicable Drive : APD-VS Series



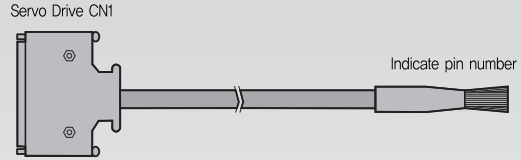
Note1) □□□ of model indicates the cable type and length

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

▶ For CN1 Cable

- ▶ Model (★Note1) : APC-CN1□□A
- ▶ Applicable Drive : APD-VS Series

1. Drive Side (CN1)
 - Case : 10350-52A0-008(3M사)
 - Connector : 10150-3000VE(3M사)
 - Cable : UL20276 25Pair(AWG 28)
2. Cable can be changed without any notice.

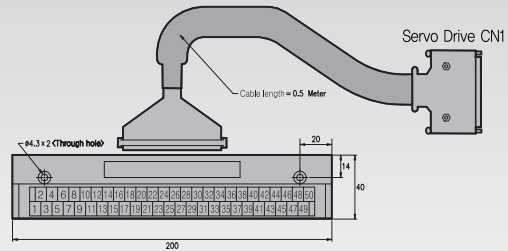


CN1	Color	CN1	Color	CN1	Color	CN1	Color	CN1	Color
1	Orange/Black 1P	11	Orange/Black 2P	21	Orange/Black 3P	31	Orange/Black 4P	41	Orange/Black 5P
2	Orange/Red 1P	12	Orange/Red 2P	22	Orange/Red 3P	32	Orange/Red 4P	42	Orange/Red 5P
3	Yellow/Black 1P	13	Yellow/Black 2P	23	Yellow/Black 3P	33	Yellow/Black 4P	43	Yellow/Black 5P
4	Yellow/Red 1P	14	Yellow/Red 2P	24	Yellow/Red 3P	34	Yellow/Red 4P	44	Yellow/Red 5P
5	White/Black 1P	15	White/Black 2P	25	White/Black 3P	35	White/Black 4P	45	White/Black 5P
6	White/Red 1P	16	White/Red 2P	26	White/Red 3P	36	White/Red 4P	46	White/Red 5P
7	White/Black 1P	17	White/Black 2P	27	White/Black 3P	37	White/Black 4P	47	White/Black 5P
8	White/Red 1P	18	White/Red 2P	28	White/Red 3P	38	White/Red 4P	48	White/Red 5P
9	Pink/Black 1P	19	Pink/Black 2P	29	Pink/Black 3P	39	Pink/Black 4P	49	Pink/Black 5P
10	Pink/Red 1P	20	Pink/Red 2P	30	Pink/Red 3P	40	Pink/Red 4P	50	Pink/Red 5P

▶ Terminal Block for CN1

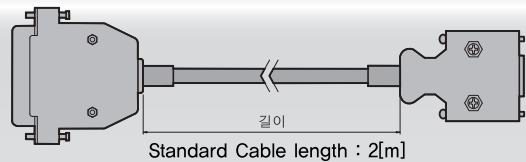
- ▶ Model (★Note1) : APC-VSCN1T-□□
- ▶ Applicable Drive : APD-VS Series

1. For APD-VS/VP
2. Standard cable Length : 0.5m
3. 1m, 2m also available



▶ Servo Drive O/S Download Cable

- ▶ Model (★Note1) : APC-CN3□□S
- ▶ Applicable Drive : APD-VS Series



PIN NO.	Phase	PIN NO.	Phase
15	Error	1	DX0
8	Data6	2	RSRX
7	Data5	3	CLKRX
9	Data7	4	CLK
16	init	8	RESET
18~25	GND	9	INT2/3
6	Data4	10	DR0
18~25	GND	11	GND
		Case	Shield

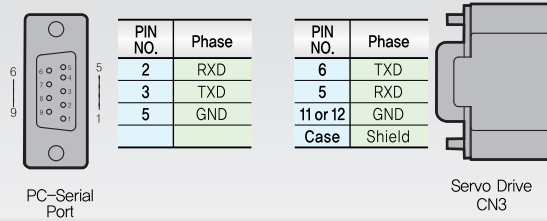
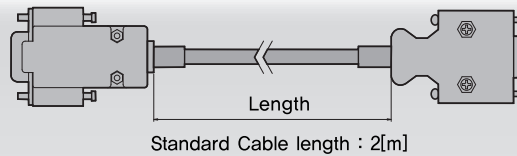
Note1) □□□ of model indicates the cable type and length

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

Options (Cable - Connector)

RS232 Communication Cable

- Model (★Note1) : APC-CN3□□R
- Applicable Drive : APD-VS/VP Series



Note1) □□□ of model indicates the cable type and length

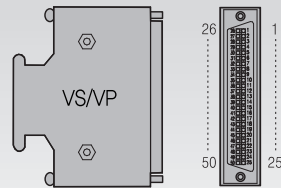
Standard Cable Length (m)	1	2	3	5
Marking	01	02	03	05

Options (Connector)

CN1 Connector

- Model : APC-CN1NNA
- Applicable Drive : APD-VS/VP Series

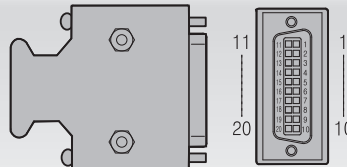
- Case : 10350-52A0-008(Made by 3M)
- Connector : 10150-3000VE(Made by 3M)



CN2 Connector

- Model : APC-CN2NNA
- Applicable Drive : APD-VS/VP Series

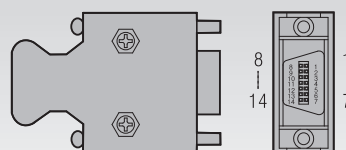
- Case : 10320-52A0-008(Made by 3M)
- Connector : 10120-3000VE(Made by 3M)



CN3 Connector

- Model : APC-CN3NNA
- Applicable Drive : APD-VS/VP Series

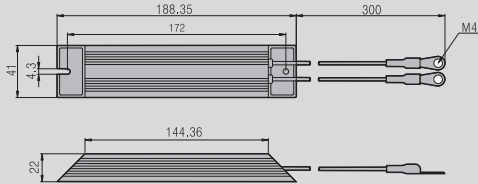
- Case : 10314-52A0-008(Made by 3M)
- Connector : 10114-3000VE(Made by 3M)



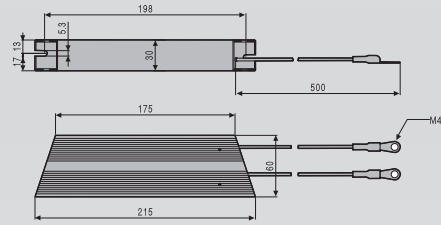
Options (Braking Resistor)

Braking Resistor

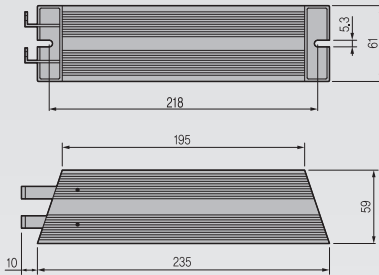
Model (★Note1) : APC-140R40, VN : 140R40VN(140W, 40Ω)
Applicable Drive : APD-VS/VP02, VS04
 Part Name : IRH 140W 40ohm



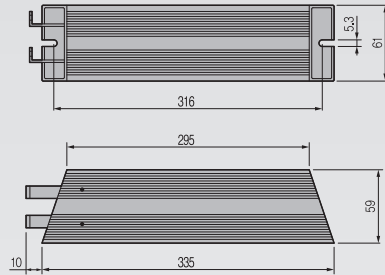
Model (★Note1) : APC-300R23, VN : 300R23VN(300W, 23Ω)
Applicable Drive : APD-VS/VP05, VS10
 Part Name : IRV 300W 23ohm



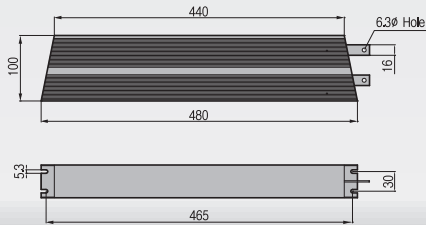
Model (★Note1) : APC-600R30(600W, 30Ω)
Applicable Drive : APD-VS15(2P), VS20(2P), VS35(3P), VS50(3P), VS75(3P), VS110(4P), APD-VN Series
 Part Name : IRV 600S 30ohm



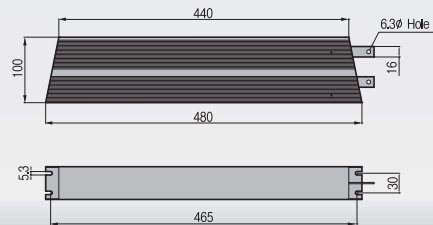
Model (★Note1) : APC-1000R6R5(1,000W, 65Ω)
Applicable Drive : APD-VS150(2P)
 Part Name : IRV 1,000S 6.5ohm



Model (★Note1) : APC-2400R2R4(2,400W, 2.4Ω)
Applicable Drive : APD-VS220(1P), VS Series
 Part Name : IRV 2,400P 2.4ohm



Model (★Note1) : APC-2400R3R2(2,400W, 3.2Ω)
Applicable Drive : APD-VS300(2P), VS370(2P)
 Part Name : IRV 2,400P 3.2ohm



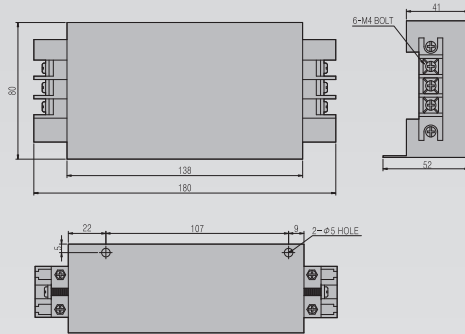
Note) Standard Braking Resistance for drive capacity is as below table.

Applicable Drive	APD-VS/VP□□N	R5	01	02	04	05	10	15	20	35	50	75	110	150	220	300	370
Braking Resistance (Basically provided)			VS Series			40[Ω] (140[W])		23[Ω] (300[W])		11.5[Ω] (300[W]×2P)			Option				

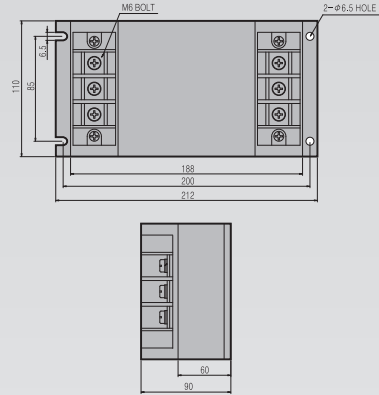
Options (Noise Filter)

☑ Noise Filter

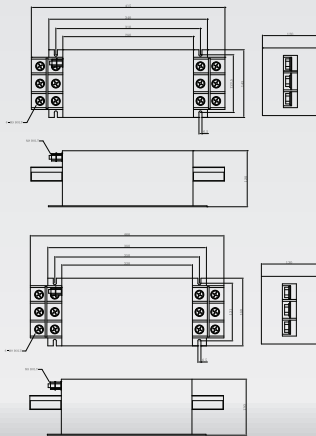
☑ Model : APC-RFY4010M/4015M/4020M/4030M
 ☑ Applicable Drive (★Note1)
 Part Name : (RFY4010M/4015M/4020M/4030M)



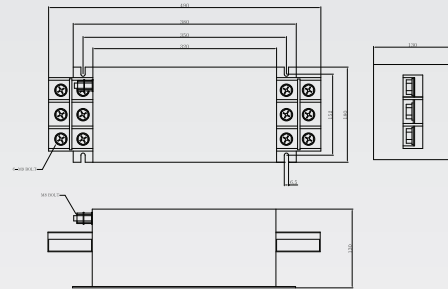
☑ Model : APC-RFY4040M/4050M/4080M
 ☑ Applicable Drive (★Note1)
 Part Name : (RFY-4040M/4050M/4080M)



☑ Model : APC-RFY4150M/4200M
 ☑ Applicable Drive (★Note1)
 Part Name : (RFY-4150M/4200M)



☑ Model : APC-RFY4250M
 ☑ Applicable Drive (★Note1)
 Part Name : (RFY-4250M)



Note) Standard Noise filter for drive capacity is as below table.

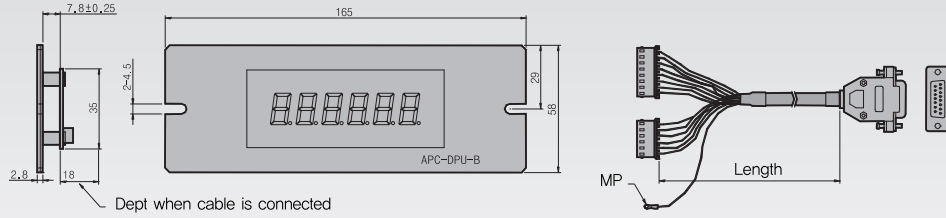
Applicable Drive APD-VS	R5	01	02	04	05	10	15	20	35	50	75	110	150	220	300	370
Noise Filter APC-RFY□□□□M				4010			4015	4020	4030	4040	4050	4080	4150	4200	4250	

Options (Setting machine / Indicator)

Remote Display

- Model (★Note1) : APC-DPU□□B
- Applicable Drive : APD-VS Series

1. Cable length can be adjusted upon request
2. Place an order with Servo Drive (Remote Type)

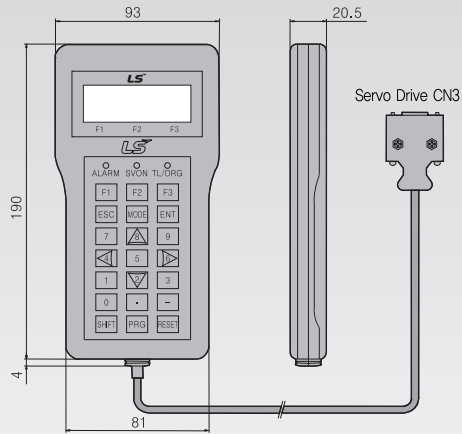


Note1) □□□ of model indicates the length of cable, and the notation is as below

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

Handy Loader

- Model (★Note1) : Handy Loader : APC-HD1□□
- Applicable Drive (★Note1) : APD-VS Series



1. Handy Loader Input Voltage : DC 5[V]
2. The Length of standard Cable : 2[m]

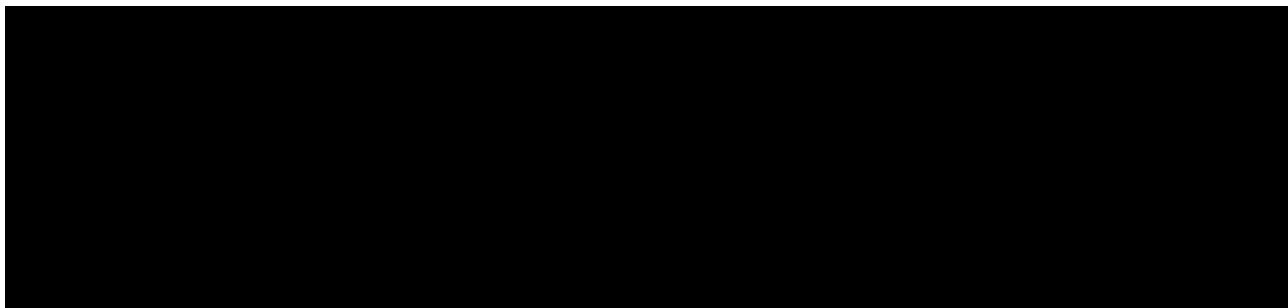
PIN NO.	Color	Phase
A	U	Red
B	V	White
C	W	Black
D	Ground	Green
E	BK+	-
F	BK-	-

Note1) □□□ of model indicates the cable type and length

Standard Cable Length (m)	2	3	4	5
Marking	20	30	40	50

LS Industrial Systems creates core automation solutions that cover everything from production facilities to information systems.

As a leader in automation solutions that introduced products like PLCs, Inverter, DCSs, and HMIs for the first time in Korea, LS Industrial Systems is developing and producing top Products that meet the most exacting standards in Korea and around the world.

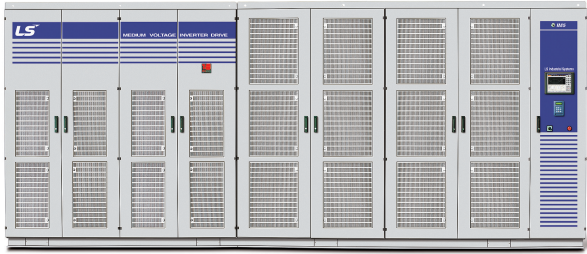


Ever since producing and supplying Korea's first programmable logic controller (PLC), LS Industrial Systems has played a pivotal role in the history of automation equipment in Korea. From the most diverse machines to large-sized process control, the company has created an optimum automation environment based on the country's highest levels of reliability and technology. While leading industrial automation and supplying optimum solutions for automobile companies, international airports, subways, power plants, and LCD production complexes, LS Industrial Systems has had its industry-leading technology recognized by international certification organizations like CE and UL. As the first company to introduce a general-purpose AC Drives in Korea and the undisputed leader in the field of AC Drives, LS Industrial Systems developed iS7 AC Drives, which provide advanced embedded functions and PLC (K120S), and recently released next generation products such as Medium Voltage AC Drives through continuous technology development.

AC SERVO SYSTEM

Inverter, AC Drive

Medium Voltage AC Drive



MV Drive

- 3kV 200kVA ~ 3,700kVA, 4kV 250kVA ~ 4,700kVA,
6kV 400kVA ~ 7,500kVA, 10kV 600kVA ~ 11,100kVA,
- Auto Cell Bypass Method allows an Easy Maintenance
 - FAN Speed Control by Inverter Internal Heat Value
 - New Algorithm for an Anti-Current Hunt
 - Built-in RS485(or Modbus-RTU) Communication
 - Optional : DeviceNet, Lonworks, CANopen, Profibus-DP, EtherNet-IP
 - Optimized Monitoring System for Users

Low Voltage AC Drive



Starvert-iG5A

- Powerful & compact sensorless vector control AC Drives
- 1 phase 0.4 ~ 1.5kW (0.5 ~ 2HP), 200 ~ 230V
 - 3 phase 0.4 ~ 22kW (0.5 ~ 30HP), 200 ~ 230V
 - 3 phase 0.4 ~ 22kW (0.5 ~ 30HP), 380 ~ 480V
 - Selectable V/F, sensorless vector control
 - Motor parameter auto-tuning
 - Powerful torque at overall speed range
 - IP20 enclosure, UL type 1 (option)
 - Built-in RS 485 (LS Bus/Modbus RTU) communication



Starvert-iS5

- Precise vector control standard AC Drives
- 3 phase 0.75 ~ 55kW (1 ~ 75HP), 200 ~ 230V
 - 3 phase 0.75 ~ 75kW (1 ~ 100HP), 380 ~ 480V
 - Selectable V/F, sensorless, sensed vector control (optional)
 - Optimum acceleration & deceleration for a maximum torque
 - Multi-function I/O terminal :
input : 27 functions/output: 21 functions
 - Communication options: Modbus RTU, Profibus-DP, Devicenet, RS485 (LS Bus), Fnet



Starvert-iS7

- High torque performance and precise AC Drives
- 3 phase 0.75 ~ 22kW (1 ~ 30HP), 200 ~ 230V
 - 3 phase 0.75 ~ 160kW (1 ~ 250HP), 380 ~ 480V
 - Constant torque/variable torque dual rating
 - Selectable V/F, sensorless, sensed vector control
 - Available IP54 enclosure (0.75 ~ 22kW(1 ~ 30HP)) as built-in option
 - Built-in RS485 (LS Bus/Modbus RTU) Communication
 - Available EMC filter & DC reactor as built-in option
 - EMC filter (0.75 ~ 22kW)/DC reactor (0.75 ~ 160kW)



Starvert-iP5A

- Fan & pump specialized AC Drives
- 3 phase 5.5 ~ 30kW (7.5 ~ 40HP), 200 ~ 230V
 - 3 phase 5.5 ~ 450kW (7.5 ~ 600HP), 380 ~ 480V
 - Specialized functions for fan & pump :
Advanced PID control (Pre-PID, Dual PID)
 - Multi motor control function (Up to 4 motors: 5.5~90kW)
 - Selectable V/F, sensorless vector control
 - Built-in RS485 (LS Bus) communication
 - Communication boards (optional) :
Modbus RTU, Devicenet, Profibus-DP, Lonworks, Bacnet

Low Voltage AC Drive Panel



Low Voltage AC Drive Panel

- 3 phase 220V/380V/440V 0.75 ~ 450kW
- For HVAC/Plant, Vector system, Medium-Large size Specialized function for capacity and energy saving FAN/PUMP
 - Human Interface Design for user convenience
 - Circuit design considered electric noise consider provide various option and solution
 - Built-in optimal sequence for satisfied Operating Conditions
 - IEC standard safety design

Photovoltaic Inverter



Solarvert

- Outdoor : 1 phase 3kW (IP54 Enclosure)
- Max power point tracking (MPPT)
 - Low distortion
 - Compact & slim size
 - User friendly HMI
 - High efficiency
 - Remote monitoring with RS485 communication

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PLCs(Programmable Logic Controllers)

XGT Series



XGR

- Base, power, CPU, network redundancy
- Processing speed : 42ns/step
- I/O points : max. 131,072
- Total memory : 32MB (program 7MB, data 2MB, reserved 7MB, flash 16MB)
- Max. 31 expansion base
- Switching over time : 4.3 ~ 22ms
- IEC 61131-3 standard language
- Enhanced maintenance via system history and network ring configuration



XGI

- Processing speed : 28ns/step
- I/O device point : 131,072 (remote I/O)
- Program capacity : 128K ~ 1Mbyte
- IEC61131-3 standard programming
 - LD (ladder), SFC (sequential function chart), ST (structured text), User defined FB (function block)
- Powerful built-in PID and process control
 - Max. 256 loops and variety of process functions



XGK

- Processing speed : 28ns/step
- High speed backplane (base) transfer
- Compact size (Module size 27x98x90)
- The system solution based on open network
- Setup and operation of each special modules without additional complicated user program



XGB(XBM)

- Processing speed : 160ns/step
- The smallest size among the same class (Basic unit: 30x90x60)
- Extension to as many as 7 layers, controlling as many as 256 points
- Best suited for medium and small system
- Maximum 5 channel communication available using built-in and extension communication modules



XGB(XBC)

- Processing speed : 83ns/step
- Extension to as many as 10 layers, controlling as many as 384 points
- Supporting floating-point arithmetic
- Built-in Cnet, HSC, PID, Positioning, Pulse Catch, Input Filter, External Interrupt
- Download port: serial, USB



AC SERVO SYSTEM

HMIs(Human Machine Interfaces)

SMART I/O Series



Block Type SMART I/O

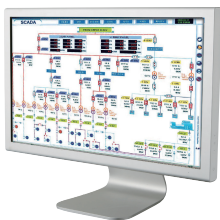
- Compatible with Modbus, Profibus DP, DeviceNet, Rnet
- Suited for medium and small scale network system
- Small size



Extension Type SMART I/O

- Open protocol Profibus-DP, DeviceNet, EtherNet/IP, Modbus/TCP, Rnet
- Suited for medium and large scale system
- Wide extension of input/output
- Maximum 256 points
- 100% compatible with XGB I/O module

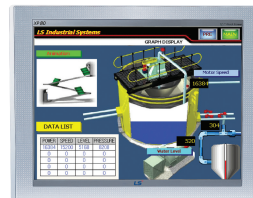
XGT InfoU



XGT InfoU (Powerful & Trendy HMI Software)

- Integrated development environment for interactive user interface
- Direct import tag database for LS PLC software
- Open architecture meets industrial standards (OPC, OLE DB, etc.)
- Easy to use
- Program development environment
- for simple application

XGT Panel Series



XP80-TTA

- Screen size : 31cm (12.1")
- TFT color : SVGA (800 x 600)
- Display color : 65,536 color
- 8-wire system, analog
- 10/100 BASE-T Ethernet, USB
- RS232C, RS422/485
- CF memory card

XGT Panel Series



XP70-TTA

- Screen size: 26cm (10.4")
- TFT color: VGA (640 x 480)
- Display color: 65,536 color
- 8-wire system, analog
- 10/100 BASE-T Ethernet, USB
- RS232C, RS422/485
- CF memory card

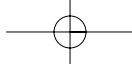


XP50-TTA

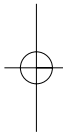
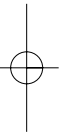
- Screen size: 21cm (8.4")
- TFT color: VGA (640 x 480)
- Display color: 65,536 color
- 8-wire system, analog
- 10/100 BASE-T Ethernet, USB
- RS232C, RS422/485
- CF memory card

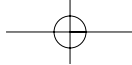
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■ **Europe & CIS** : +82-2-2034-4376 / ywsohn@lisis.biz



A large rectangular frame containing horizontal dotted lines for writing. The word "MEMO" is printed in a large, light gray, italicized font across the center of the page.





MEMO

