

# Kinco

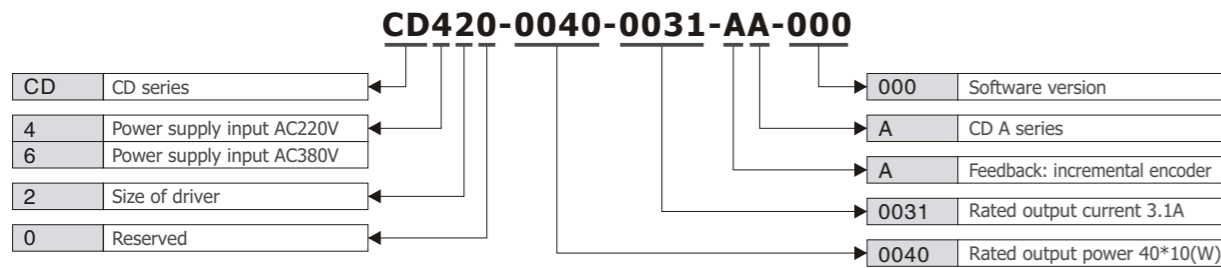
Kinco CD Series  
AC Servo System



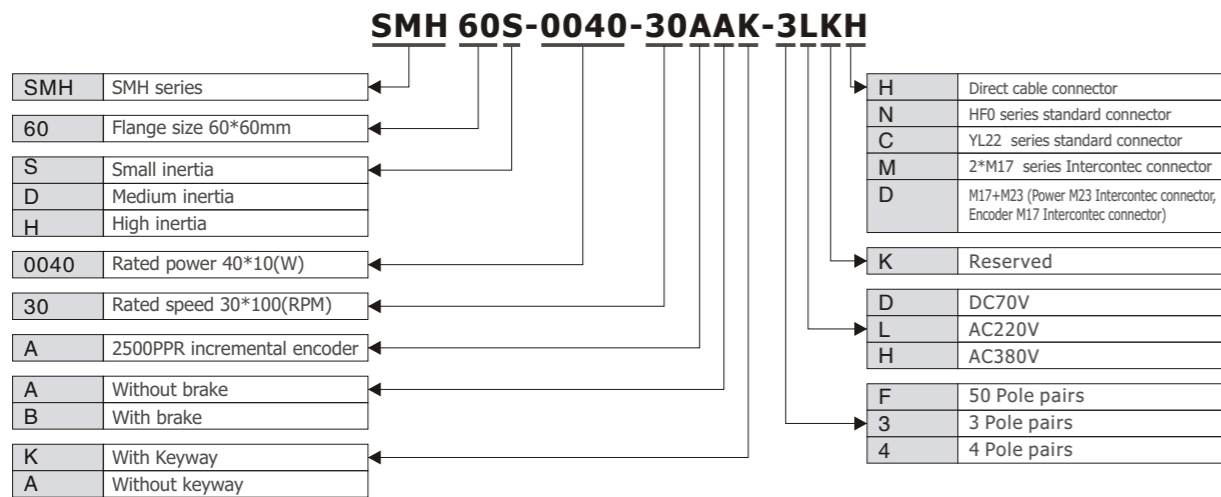
## Kinco CD Series AC Servo System

# Model Description of Servo Drivers and Motors

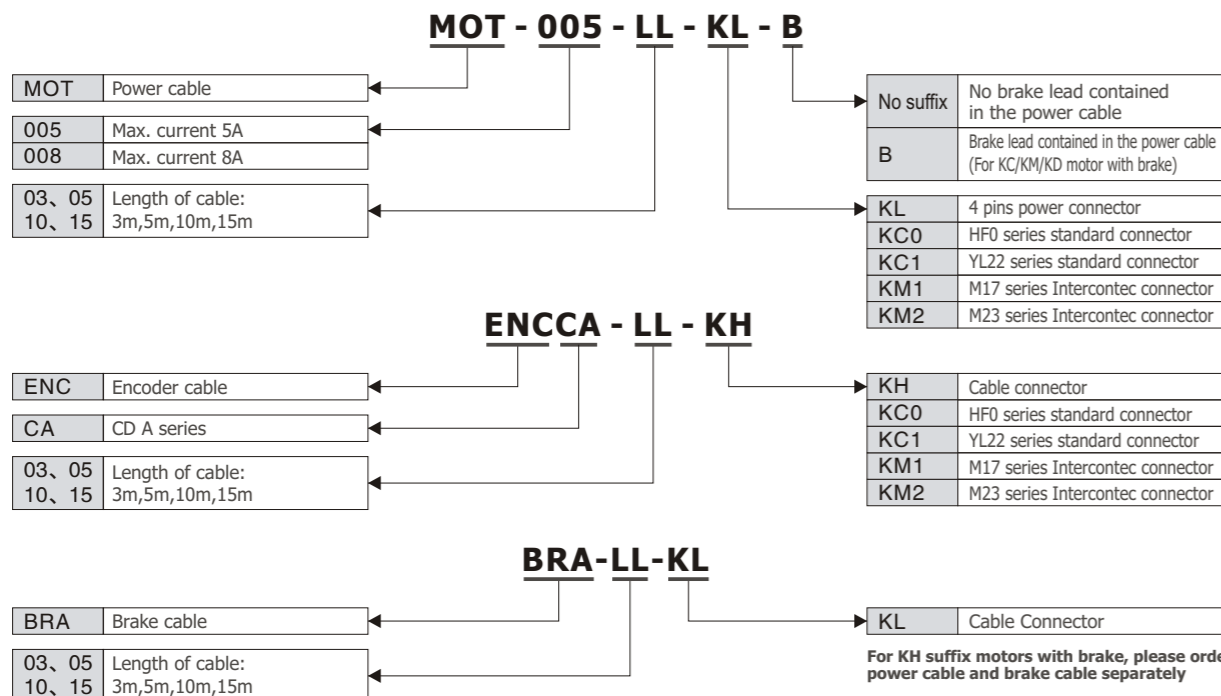
## Kinco CD Series Servo Drivers



## Kinco SMH series servo motors



## Power,brake and encoder cable of motors

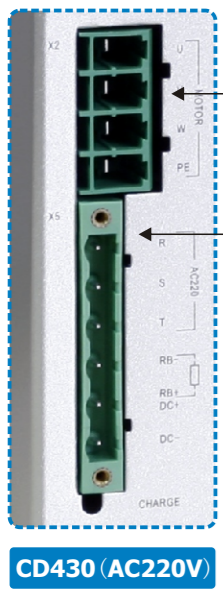
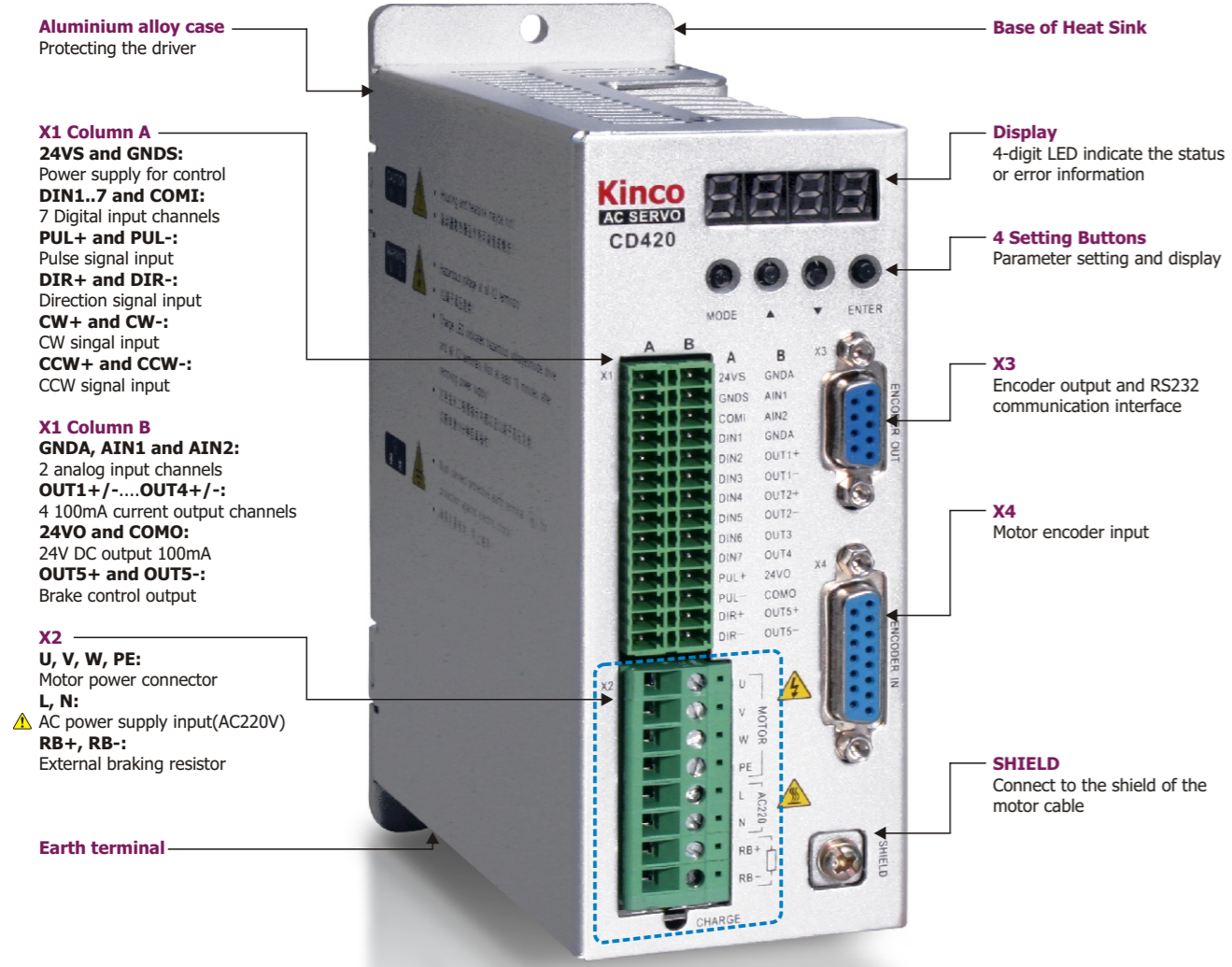


# Servo Drivers and Motors Selection Table

Category	Power	Driver	Motor	Description	Power and brake cable	Encoder cable	Rated Speed/ Rated Torque/ Rated Current
Small Inertia 220V	200W	CD420-0020-0016-AA-000	SMH60S-0020-30AAK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	3000rpm/ 0.64Nm/ 1.6A
			SMH60S-0020-30ABK-3LKH	Cable connector and brake	MOT-005-LL-KL/BRA-LL-KL	ENCCA-LL-KC0	
			SMH60S-0020-30AAK-3LKN	HFO standard connector	MOT-005-LL-KC0	ENCCA-LL-KM1	
			SMH60S-0020-30AAK-3LKM	Intercontec connector	MOT-005-LL-KM1	ENCCA-LL-KM1	
			SMH60S-0020-30ABK-3LKM	Intercontec connector and brake	MOT-005-LL-KM1-B		
			SMH60S-0020-30ABK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	
	400W	CD420-0040-0031-AA-000	SMH60S-0040-30AAK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	3000rpm/ 1.27Nm/ 3.1A
			SMH60S-0040-30ABK-3LKH	Cable connector and brake	MOT-005-LL-KL/BRA-LL-KL	ENCCA-LL-KC0	
			SMH60S-0040-30AAK-3LKN	HFO standard connector	MOT-005-LL-KC0	ENCCA-LL-KM1	
			SMH60S-0040-30AAK-3LKM	Intercontec connector	MOT-005-LL-KM1	ENCCA-LL-KM1	
			SMH60S-0040-30ABK-3LKM	Intercontec connector and brake	MOT-005-LL-KM1-B		
			SMH60S-0040-30ABK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	
750W	CD420-0075-0039-AA-000	SMH80S-0075-30AAK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH	3000rpm/ 2.39Nm/ 3.9A	
		SMH80S-0075-30ABK-3LKH	Cable connector and brake	MOT-005-LL-KL/BRA-LL-KL	ENCCA-LL-KC0		
		SMH80S-0075-30AAK-3LKN	HFO standard connector	MOT-005-LL-KC0	ENCCA-LL-KM1		
		SMH80S-0075-30AAK-3LKM	Intercontec connector	MOT-005-LL-KM1	ENCCA-LL-KM1		
		SMH80S-0075-30ABK-3LKM	Intercontec connector and brake	MOT-005-LL-KM1-B			
		SMH80S-0075-30ABK-3LKH	Cable connector	MOT-005-LL-KL	ENCCA-LL-KH		
1000W	CD430-0100-0063-AA-000	SMH80S-0100-30AAK-3LKH	Cable connector	MOT-008-LL-KL	ENCCA-LL-KH	3000rpm/ 3.18Nm/ 6.3A	
		SMH80S-0100-30ABK-3LKH	Cable connector and brake	MOT-008-LL-KL/BRA-LL-KL	ENCCA-LL-KC0		
		SMH80S-0100-30AAK-3LKN	HFO standard connector	MOT-008-LL-KC0	ENCCA-LL-KM1		
		SMH80S-0100-30AAK-3LKM	Intercontec connector	MOT-008-LL-KM1	ENCCA-LL-KM1		
		SMH80S-0100-30ABK-3LKM	Intercontec connector and brake	MOT-008-LL-KM1-B			
		SMH80S-0100-30ABK-3LKH	Cable connector	MOT-008-LL-KL	ENCCA-LL-KH		
Medium Inertia 220V	1.05KW	CD430-0105-0054-AA-000	SMH110D-0105-20AAK-4LKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	2000rpm/ 5Nm/ 5.4A
			SMH110D-0105-20ABK-4LKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1	
			SMH110D-0105-20AAK-4LKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1	
			SMH110D-0105-20ABK-4LKD	Intercontec connector and brake	MOT-008-LL-KM2-B		
	1.26KW	CD430-0126-0062-AA-000	SMH110D-0126-20AAK-4LKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	2000rpm/ 6Nm/ 6.2A
			SMH110D-0126-20ABK-4LKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1	
			SMH110D-0126-20AAK-4LKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1	
			SMH110D-0126-20ABK-4LKD	Intercontec connector and brake	MOT-008-LL-KM2-B		
	1.25KW	CD430-0125-0065-AA-000	SMH110D-0125-30AAK-4LKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	3000rpm/ 4Nm/ 6.5A
			SMH110D-0125-30ABK-4LKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1	
			SMH110D-0125-30AAK-4LKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1	
			SMH110D-0125-30ABK-4LKD	Intercontec connector and brake	MOT-008-LL-KM2-B		
Medium Inertia 380V	1.26KW	CD620-0126-0043-AA-000	SMH110D-0126-30AAK-4HKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	3000rpm/ 4Nm/ 4.3A
			SMH110D-0126-30ABK-4HKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1	
			SMH110D-0126-30AAK-4HKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1	
			SMH110D-0126-30ABK-4HKD	Intercontec connector and brake	MOT-008-LL-KM2-B		
	1.57KW	CD620-0157-0054-AA-000	SMH110D-0157-30AAK-4HKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	3000rpm/ 5Nm/ 5.4A
			SMH110D-0157-30ABK-4HKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1	
			SMH110D-0157-30AAK-4HKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1	
			SMH110D-0157-30ABK-4HKD	Intercontec connector and brake	MOT-008-LL-KM2-B		
1.88KW	CD620-0188-0062-AA-000	SMH110D-0188-30AAK-4HKC	YL22 standard connector	MOT-008-LL-KC1	ENCCA-LL-KC1	3000rpm/ 6Nm/ 6.2A	
		SMH110D-0188-30ABK-4HKC	YL22 standard connector and brake	MOT-008-LL-KC1-B	ENCCA-LL-KC1		
		SMH110D-0188-30AAK-4HKD	Intercontec connector	MOT-008-LL-KM2	ENCCA-LL-KM1		
		SMH110D-0188-30ABK-4HKD	Intercontec connector and brake	MOT-008-LL-KM2-B			



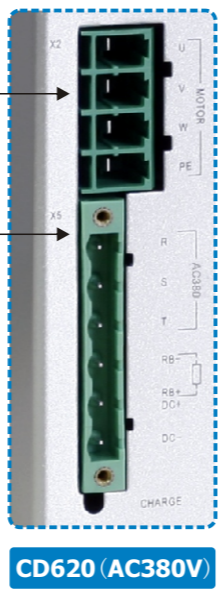
# Panel and Interface Description of Servo Drivers



**X2**  
**U, V, W, PE:**  
Motor power connector

**X5**  
**R,S,T:**  
AC power supply input (AC220V)  
**RB+, RB-:**  
External braking resistor  
**DC+, DC-:**  
DC bus interface (DC310V±20%)

**CD420 (AC220V)**



**X2**  
**U, V, W, PE:**  
Motor power connector

**X5**  
**R,S,T:**  
AC power supply input (AC380V)  
**RB+, RB-:**  
External braking resistor  
**DC+, DC-:**  
DC bus interface (DC540V±20%)

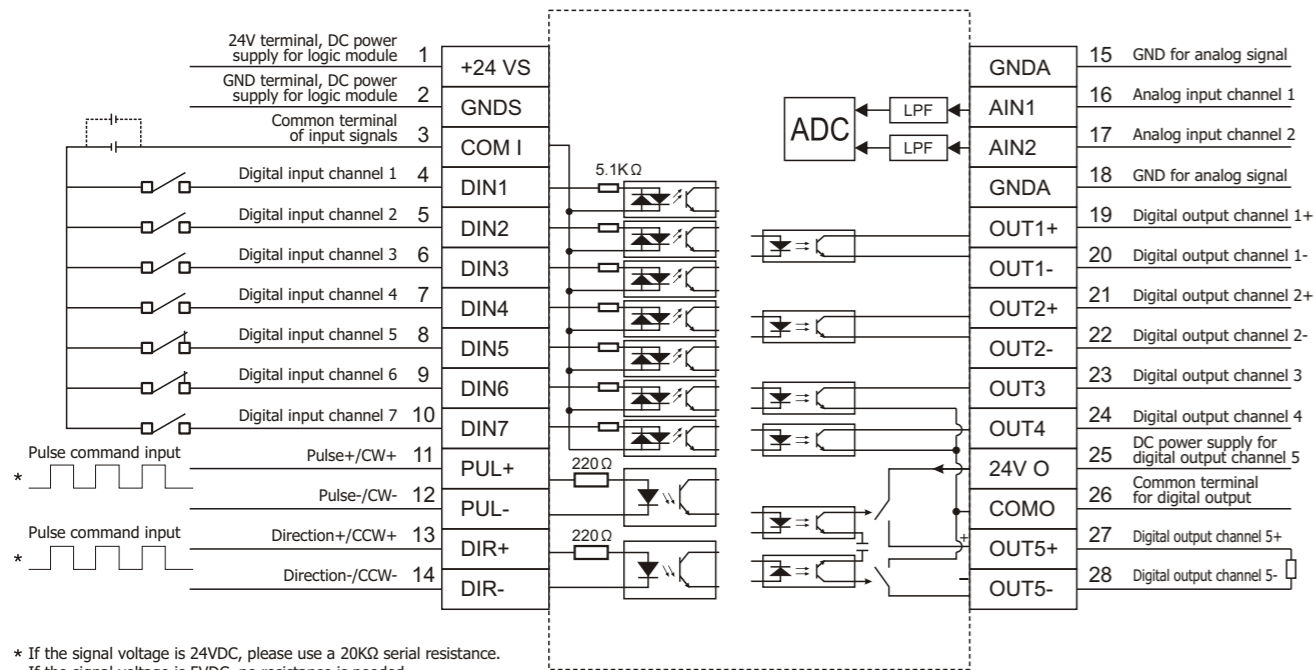
**CD620 (AC380V)**

**Note:** All CD series drivers share the same interface definition except for the X2 and X5 power interfaces

# Technical Specifications

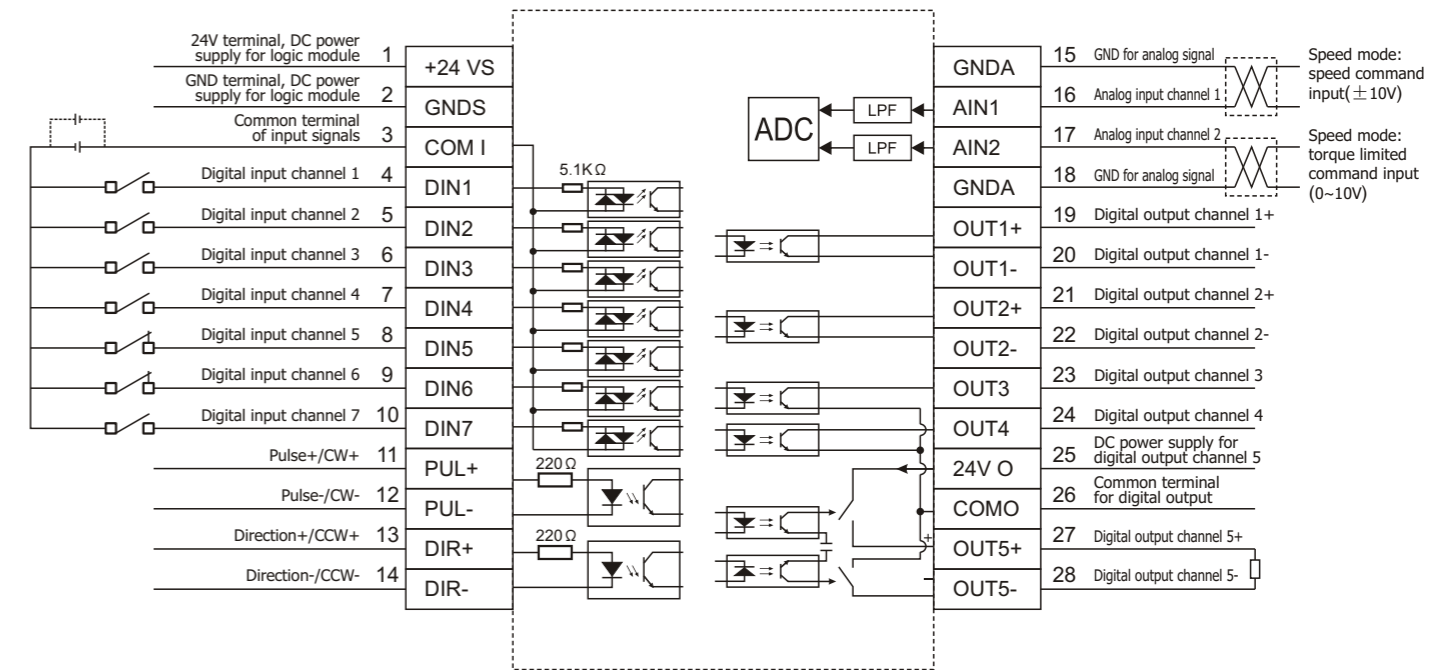
Model parameter	CD420			CD430			CD620				
	200W	400W	750W	1KW	1.05KW	1.25KW	1.26KW	1.26KW	1.57KW	1.88KW	
Power	Main supply voltage	Single-phase AC220V±20% 47-63Hz			Single-phase or 3-phase AC220V±20% 47-63Hz			3-phase AC380V±20% 47-63Hz			
	Control circuit voltage	DC24V 1A									
Current	Rated current(RMS)	1.6A	3.1A	3.9A	6.3A	5.4A	6.5A	6.2A	4.3A	5.4A	6.2A
	Peak current(PEAK)	6.8A	13.2A	15A	26.7A	22.9A	27A	26.3A	18.2A	22.9A	25A
Feedback signal	2500PPR (incremental encoder with 5V supply and RS422 signals)										
Brake chopper	Use an external braking resistor if necessary										
Brake chopper threshold	DC380V±5V							DC680V±5V			
Over-voltage alarming threshold	DC400V±5V							DC700V±5V			
Under-voltage alarming threshold	DC200V±5V							DC400V±5V			
Cooling method	Natural air cooling			Fan							
Weight	1.2kg			2.4kg							
Position Mode	Max. frequency of input pulse	Differential signal: 500KPPS, Open-collector signal: 200KPPS									
	Pulse command mode	Pulse+direction, CCW+CW, (higher voltages than 5V need external current limiting resistors)									
	Command smoothing	Low-pass filtering(Adjustable by internal parameter setting)									
	Feedforward gain	Adjustable by internal parameter setting									
	Electronic gear ratio	Setting range, Gear factor: -32768~32767, Gear divider: 1~32767, 1/50≤ Gear factor/Gear divider ≤50									
Speed Mode	Position loop sampling frequency	1KHz									
	Analog input voltage range	0~±10V (Resolution 12bit)									
	Input impedance	200K									
	Analog input sampling frequency	4KHz									
	Command source	External analog command / Adjustable by internal parameter setting									
Torque Mode	Command smoothing	Low-pass filtering(Adjustable by internal parameter setting)									
	Input voltage dead-zone setting	Adjustable by internal parameter setting									
	Input voltage offset setting	Adjustable by internal parameter setting									
	Speed limit	Adjustable by internal parameter setting / External analog command control									
	Torque limit	Adjustable by internal parameter setting / External analog command control									
Digital Input	Speed loop sampling frequency	4KHz									
	Analog voltage input range	0~±10V (Resolution 12bit)									
	Input impedance	200K									
	Input sampling frequency	4KHz									
	Command source	External analog command / internal command									
Digital Output	Command smoothing	Low-pass filtering(Adjustable by internal parameter setting)									
	Speed limit	Adjustable by internal parameter setting / External analog command control									
Digital Input	Input voltage dead-zone setting	Adjustable by internal parameter setting									
	Input voltage offset setting	Adjustable by internal parameter setting									
Digital Output	Input voltage dead-zone setting	Adjustable by internal parameter setting									
	Input voltage offset setting	Adjustable by internal parameter setting									
Digital Input	Input specification	7 digital inputs, with COM1 terminal for PNP or NPN connection.									
	Input function	Define freely according to requirement, supporting following functions: Driver enable, driver fault reset, driver mode control, Proportional control, forward inhibit limit, reverse inhibit limit, negative limit position, home signal, speed command reverse, internal speed or position select									
Digital Output	Output specification	5 digital outputs, OUT1~OUT4 current is 100mA, OUT5 current is 800mA									
	Output function	Define freely according to requirement, supporting following functions: Driver ready, driver fault, position reached, motor at zero speed, motor brake, motor speed reached, N signal									
Operation Environment	Protection functions	Over-voltage protection, under-voltage protection, motor over-heat protection(FT), short-circuit protection, drive over-heat protection, etc.									
	Communication interface	RS232									
	Operating temperature	0~40℃									
	Storage temperature	-10℃~70℃									
	Humidity(non-condensing)	5~95%									
	Protection class	IP20									
	Installation environment	Installed in a dust-free, dry and lockable environment(such as in a electrical cabinet)									
	Installation mode	Vertical installation									
	Altitude	Below 1000m									
	Atmospheric pressure	86kpa~106kpa									

## Wiring Diagram for Position Control Mode



\* If the signal voltage is 24VDC, please use a 20KΩ serial resistance.  
If the signal voltage is 5VDC, no resistance is needed.

## Wiring Diagram for Speed Control Mode



Speed mode: speed command input ( $\pm 10V$ )  
Speed mode: torque limited command input (0~10V)

### Default setting for digital inputs:

- Din 1: Driver enable
- Din 2: Driver fault reset
- Din 3: Driver mode control
- Din 4: Speed loop proportional control
- Din 5: Forward inhibit limit
- Din 6: Reverse inhibit limit
- Din 7: Home signal

To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Reverse command
- Internal speed section control
- Internal position section control
- Start homing
- Active command
- Quick stop

### Default setting for digital output:

- Out 1: Driver ready
- Out 2: Driver fault
- Out 3: Position reached
- Out 4: Motor at zero speed
- Out 5: Motor brake

To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Index signal Z appears
- Motor brake
- Position limiting
- Reference found

### Default setting for digital inputs:

- Din 1: Driver enable
- Din 2: Driver fault reset
- Din 3: Driver mode control
- Din 4: Speed loop proportional control
- Din 5: Forward inhibit limit
- Din 6: Reverse inhibit limit
- Din 7: Home signal

To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Reverse command
- Internal speed section control
- Internal position section control
- Start homing
- Active command
- Quick stop

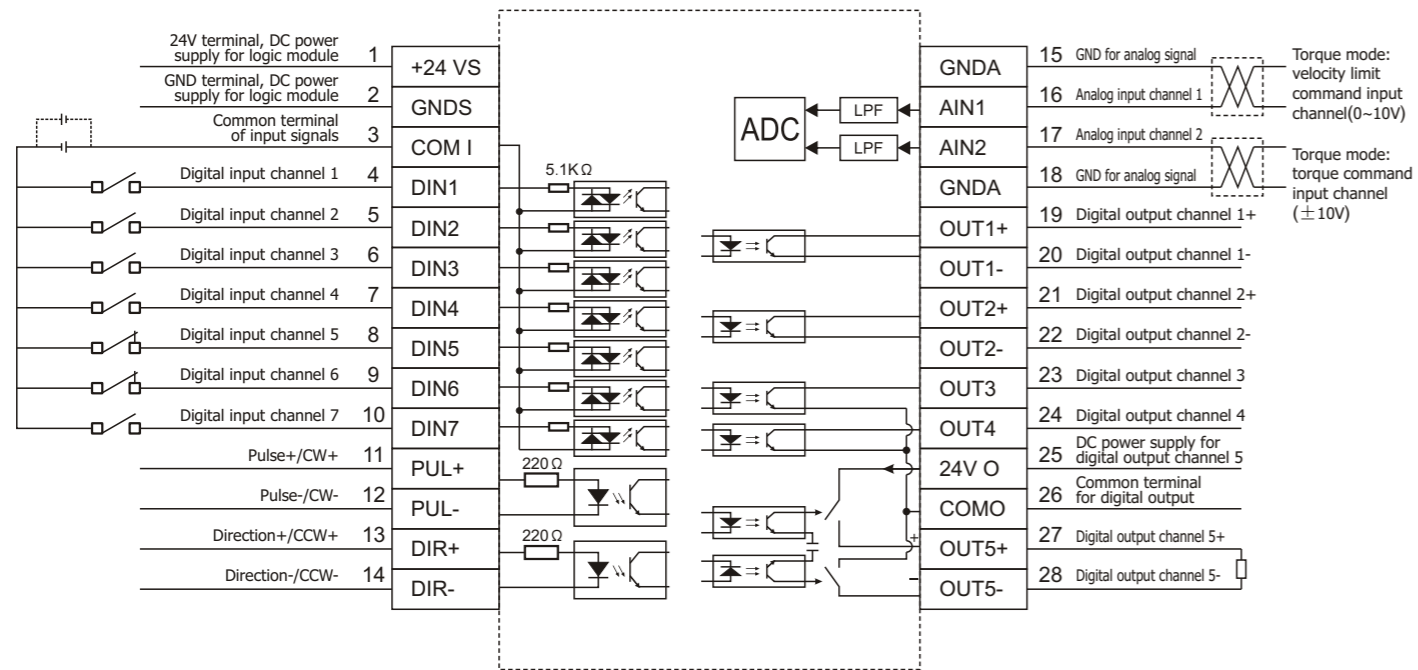
### Default setting for digital output:

- Out 1: Driver ready
- Out 2: Driver fault
- Out 3: Speed reached
- Out 4: Motor at zero speed
- Out 5: Motor brake

To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Index signal Z appears
- Motor brake
- Position limiting
- Reference found

# Wiring Diagram for Torque Control Mode



### Default setting for digital inputs:

- Din 1: Driver enable
- Din 2: Driver fault reset
- Din 3: Driver mode control
- Din 4: Speed loop proportional control
- Din 5: Forward inhibit limit
- Din 6: Reverse inhibit limit
- Din 7: Home signal

To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Reverse command
- Internal speed section control
- Internal position section control
- Start homing
- Active command
- Quick stop

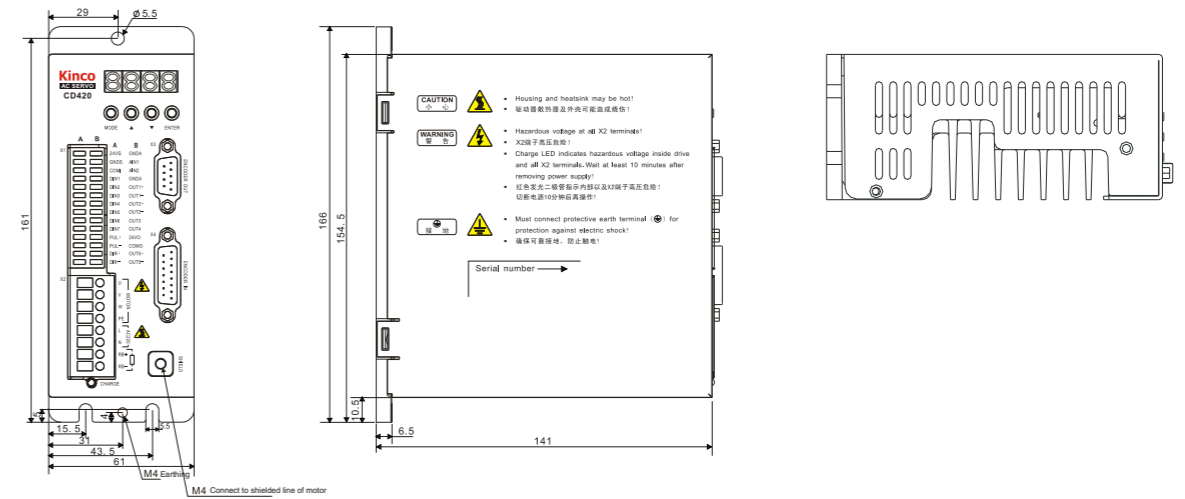
### Default setting for digital output:

- Out 1: Driver ready
- Out 2: Driver fault
- Out 3: Torque reached
- Out 4: Motor at zero speed
- Out 5: Motor brake

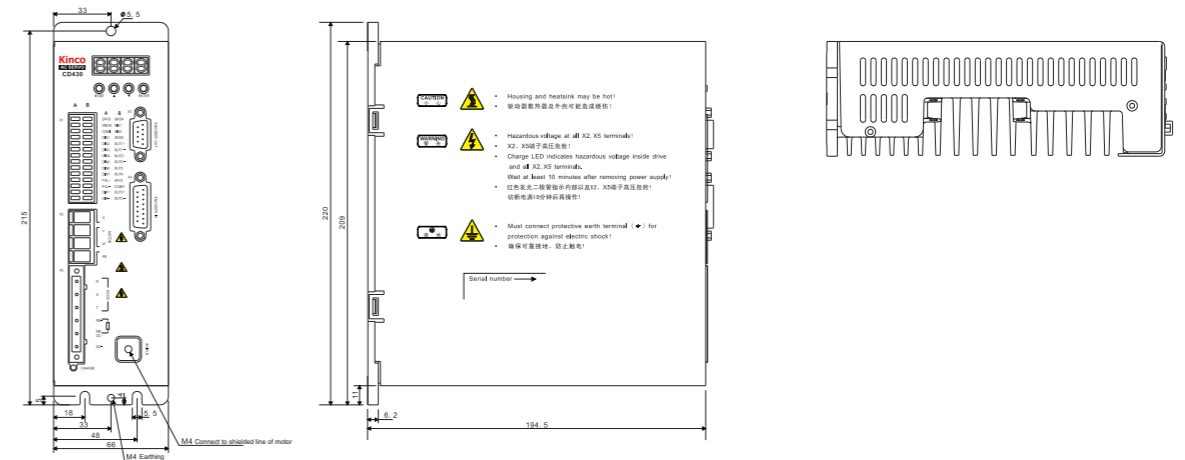
To use other functions, please redefine the digital inputs, Other functions that can be defined are as followings:

- Index signal Z appears
- Motor brake
- Position limiting
- Reference found

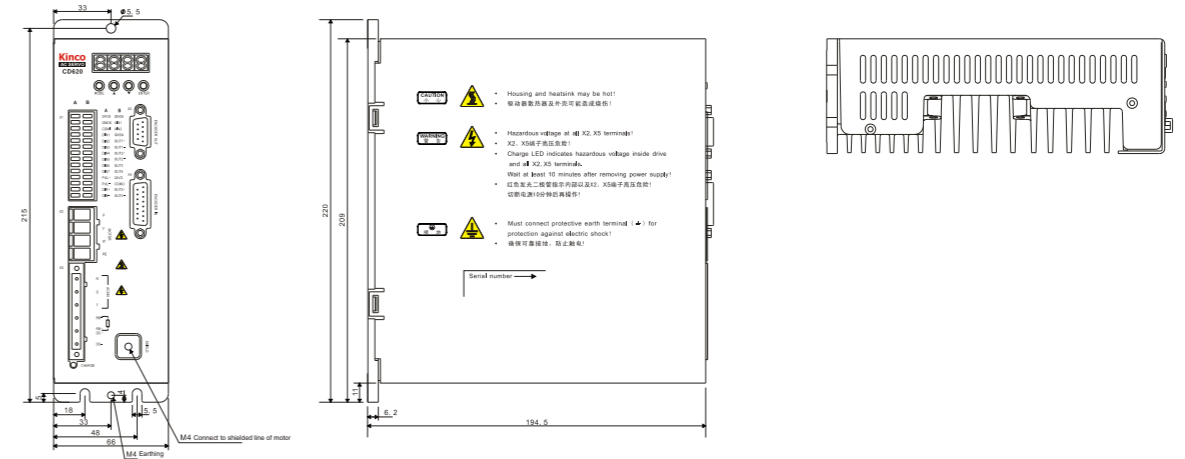
# Mechanical dimension diagram for CD420 (Unit:mm)



# Mechanical dimension diagram for CD430 (Unit:mm)

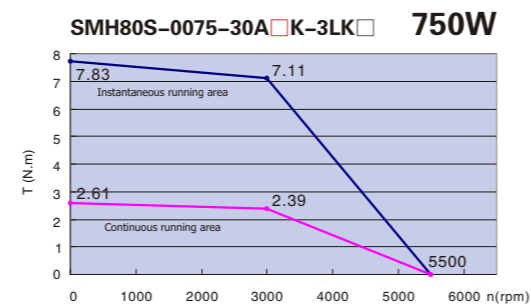
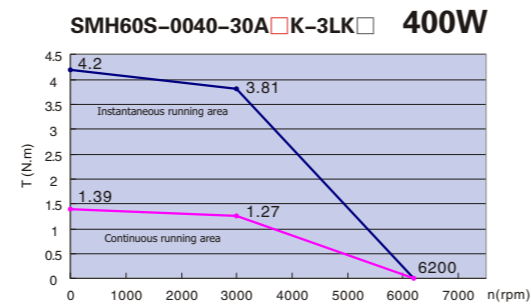
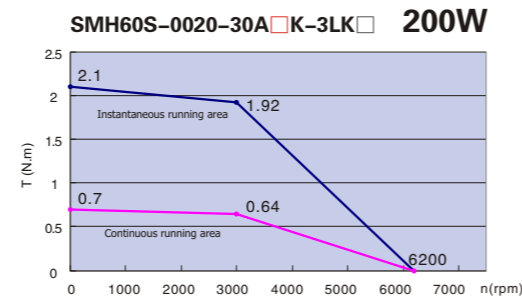
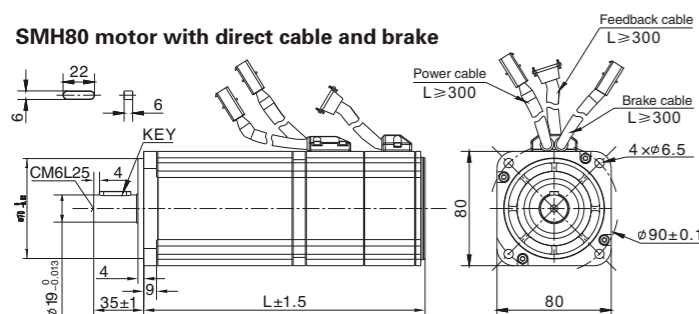
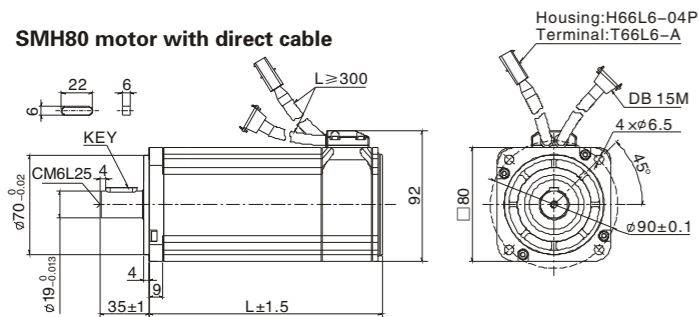
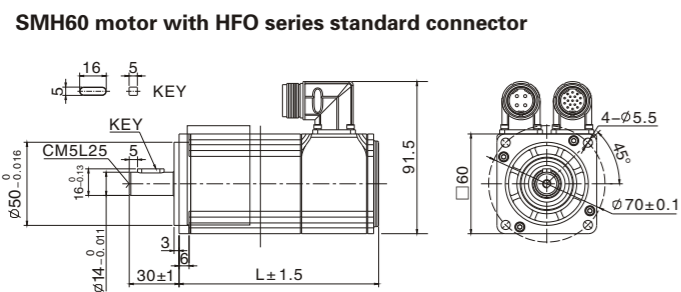
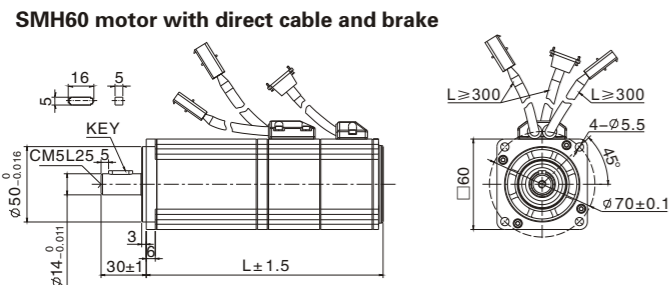
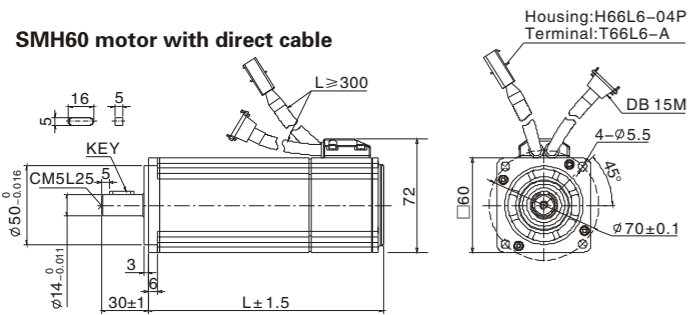


# Mechanical dimension diagram for CD620 (Unit:mm)



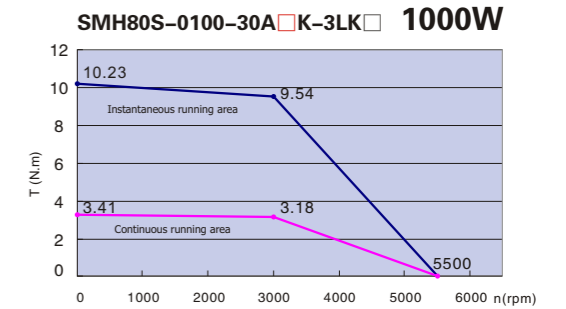
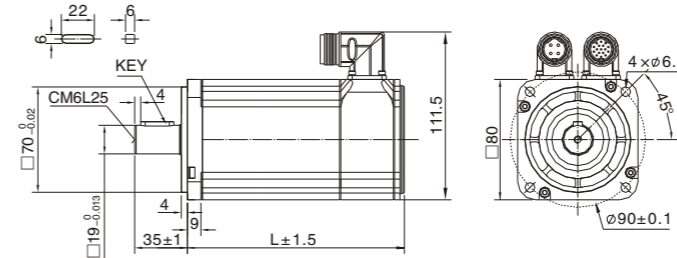


# Dimensions/Torque curve/Technical Specifications of SMH60/80 Servo Motors



# Dimensions/Torque curve/Technical Specifications of SMH60/80 Servo Motors

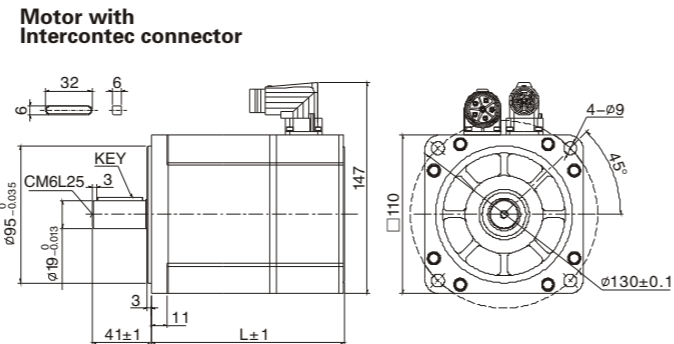
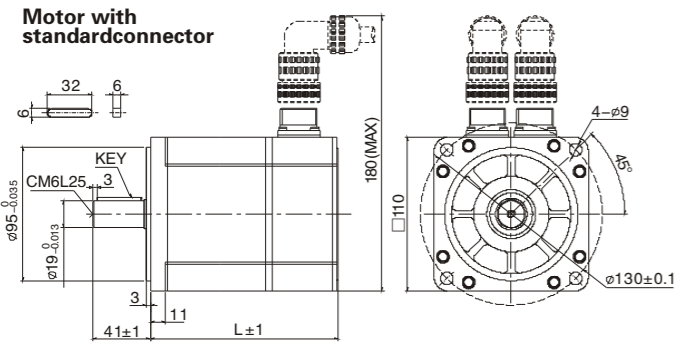
**SMH80 motor with HFO series standard connector**



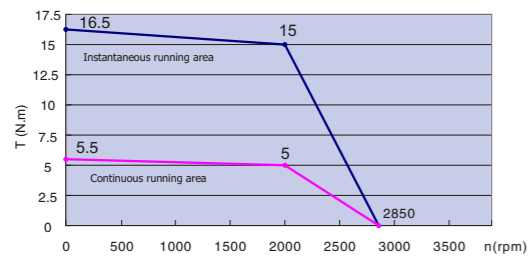
Motor series	Small inertia, flange size 60mm		Small inertia, flange size 80mm	
Model	SMH60S-0020-30A K-3LK	SMH60S-0040-30A K-3LK	SMH80S-0075-30A K-3LK	SMH80S-0100-30A K-3LK
Compatible driver	CD420-0020-0016-AA-000	CD420-0040-0031-AA-000	CD420-0075-0039-AA-000	CD430-0100-0063-AA-000
DC link voltage UDC	300	300	300	300
Continuous performance	Rated power P <sub>n</sub> (W)	200	400	750
	Rated torque T <sub>n</sub> (Nm)	0.64	1.27	2.39
	Rated speed n <sub>n</sub> (rpm)	3000	3000	3000
	Rated current I <sub>n</sub> (A)	1.6	3.1	3.9
Maximum torque T <sub>m</sub> (Nm)	1.92	3.82	7.17	9.48
Maximum current I <sub>m</sub> (A)	4.8	9.3	11.7	18.9
Standstill torque T <sub>s</sub> (Nm)	0.7	1.39	2.63	3.3
Standstill current I <sub>s</sub> (A)	1.79	3.38	4.4	6.93
Resistance line-line R <sub>L</sub> (Ω)	8.02	3.52	1.4	0.86
Inductance line-line L <sub>L</sub> (mH)	16.3	7.8	7.5	4.5
Electrical time constant τ <sub>e</sub> (ms)	2.03	2.22	5.35	5.23
Mechanical time constant τ <sub>m</sub> (ms)	2.26	1.35	0.75	0.89
Reverse voltage constant K <sub>v</sub> (V/krpm)	29	29	40	34
Torque constant K <sub>t</sub> (Nm/A)	0.48	0.48	0.662	0.562
Rotor moment of inertia J <sub>m</sub> (Kg · cm <sup>2</sup> )	0.375	0.379(with brake)	0.51	0.514(with brake)
Pole pair number	3	3	3	3
Maximum voltage rising du/dt (KV/μs)	8	8	8	8
Insulation class	F	F	F	F
Maximum radial force F (N)	180	180	335	335
Maximum axial force F (N)	90	90	167.5	167.5
Weight G (Kg)	1.3	1.8(with brake)	1.8	2.3(with brake)
Length of motor L (mm)	120	159±1.5(with brake)	150	189±1.5(with brake)
Position feedback device	Incremental encoder 2500ppr			
Cooling method	Totally enclosed, non-ventilated			
Protection level	IP65 for body, shaft sealing IP54			
Environmental conditions for operation	Temperature	-20°C ~ 40°C		
	Humidity	Below 90% RH (No condensing)		
	Ambient environment	Away from active gas, combustible gas, oil drops and dust		
	Altitude	Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise		

**Note:** □=A: no brake □=H: Cable connector  
 □=B: brake □=N: HFO series standard connector  
 □=M: 2XM17 series Intercontec connector

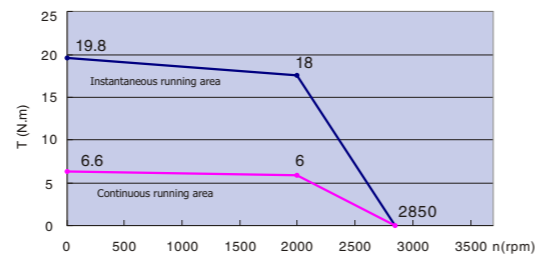
# Dimensions/Torque curve of SMH110 Servo Motors



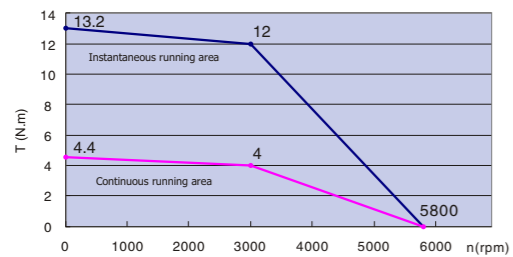
**SMH110D-0105-20A□K-4LK□ 1.05KW**



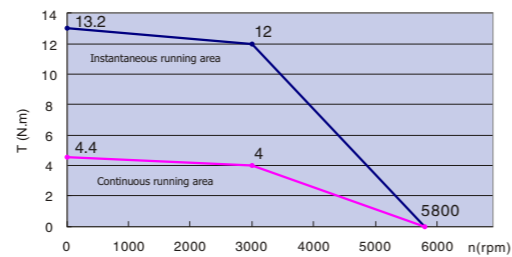
**SMH110D-0126-20A□K-4LK□ 1.26KW**



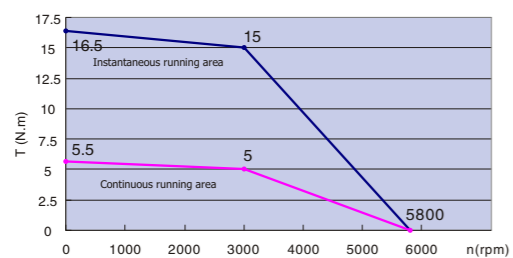
**SMH110D-0125-30A□K-4LK□ 1.25KW**



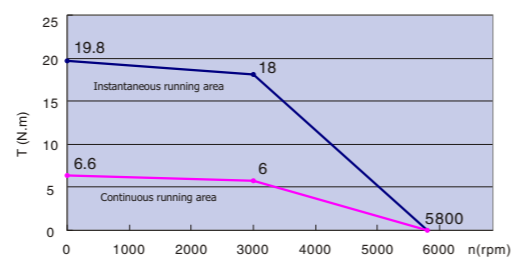
**SMH110D-0126-30A□K-4HK□ 1.26KW**



**SMH110D-0157-30A□K-4HK□ 1.57KW**



**SMH110D-0188-30A□K-4HK□ 1.88KW**



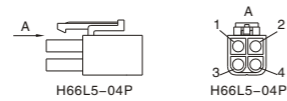
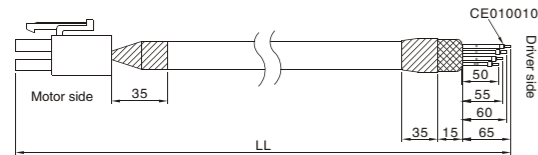
# Technical Specifications of SMH110 Servo Motors

Motor series	Medium inertia, flange size 110mm												
Model	SMH110D-0125-30A□K-4LK□	SMH110D-0126-30A□K-4HK□	SMH110D-0105-20A□K-4LK□	SMH110D-0157-30A□K-4HK□	SMH110D-0126-20A□K-4LK□	SMH110D-0188-30A□K-4HK□							
Compatible driver	CD430-0125-0065-AA-000	CD620-0126-0043-AA-000	CD430-0105-0054-AA-000	CD620-0157-0054-AA-000	CD430-0126-0062-AA-000	CD620-0188-0062-AA-000							
DC link voltage UDC	300	560	300	560	300	560							
Continuous performance	Rated power $P_n$ (W)	1250	1260	1050	1570	1260	1880						
	Rated torque $T_n$ (Nm)	4.0	4.0	5.0	5.0	6.0	6.0						
	Rated speed $n_n$ (rpm)	3000	3000	2000	3000	2000	3000						
	Rated current $I_n$ (A)	6.5	4.3	5.9	5.9	6.2	6.2						
Maximum torque $T_m$ (Nm)	12	12	15.0	15.0	18.0	18.0							
Maximum current $I_m$ (A)	19.5	12.9	17.7	17.7	18.6	18.6							
Standstill torque $T_s$ (Nm)	4.4	4.4	5.5	5.5	6.6	6.6							
Standstill current $I_s$ (A)	6.82	4.73	6.49	6.49	6.765	6.765							
Resistance line-line $R_L$ ( $\Omega$ )	0.8	1.83	1.03	1.03	1.258	1.258							
Inductance line-line $L_L$ (mH)	6.4	13.5	7.8	7.8	9.62	9.62							
Electrical time constant $\tau_e$ (ms)	7.9	7.37	7.57	7.57	7.64	7.64							
Mechanical time constant $\tau_m$ (ms)	1.4	1.63	1.55	1.55	1.65	1.65							
Reverse voltage constant $K_e$ (V/krpm)	45	64	55	55	64	64							
Torque constant $K_t$ (Nm/A)	0.744	1.058	0.910	0.910	1.058	1.058							
Rotor moment of inertia $J_m$ (Kg · cm <sup>2</sup> )	5.8	5.85 (with brake)	5.8	5.85 (with brake)	7.2	7.25 (with brake)	7.2	7.25 (with brake)	8.5	8.55 (with brake)	8.5	8.55 (with brake)	
Pole pair number	4	4	4	4	4	4							
Maximum voltage rising $du/dt$ (KV/ $\mu$ s)	8	8	8	8	8	8							
Insulation class	F	F	F	F	F	F							
Maximum radial force $F$ (N)	630	630	630	630	630	630							
Maximum axial force $F$ (N)	315	315	315	315	315	315							
Weight $G$ (Kg)	6.2	8.2 (with brake)	6.2	8.2 (with brake)	7.2	9.2 (with brake)	7.2	9.2 (with brake)	8.2	10.2 (with brake)	8.2	10.2 (with brake)	
Length of motor $L$ (mm)	168	228 ± 1 (with brake)	168	228 ± 1 (with brake)	185	245 ± 1 (with brake)	185	245 ± 1 (with brake)	202	262 ± 1 (with brake)	202	262 ± 1 (with brake)	
Position feedback device	Incremental encoder 2500ppr												
Cooling method	Totally enclosed, non-ventilated												
Protection level	IP65 for body, shaft sealing IP54												
Environmental conditions for operation	Temperature	-20°C ~ 40°C (No ice)											
	Humidity	Below 90% RH (No condensing)											
	Ambient environment	Away from active gas, combustible gas, oil drops and dust											
	Altitude	Maximum altitude 4000m, Rated power at 1000m or below, Above 1000m: Decreasing 1.5% per 100m rise											

**Note:** □=A: no brake □=C: YL22 series standard connector  
 □=B: brake □=D: Intercontec connector

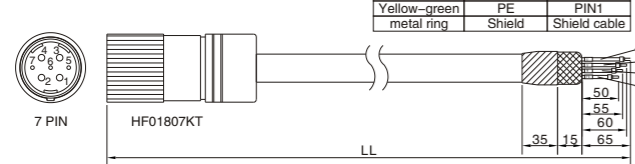
# Wiring Diagram for The Power Cable

**MOT-005-LL-KL**  
Wire spec. UI20328 4C x 18AWG(41/0.16T) black



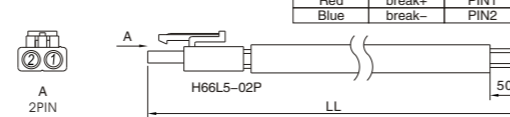
MOT-005-LL-KL		
Cable Color	Signal	PIN #
Yellow	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow-green	PE	PIN4

**MOT-005-LL-KC0**  
Wire spec. 4C x 18AWG(41/0.16T)



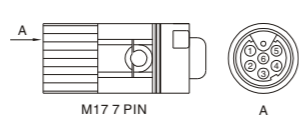
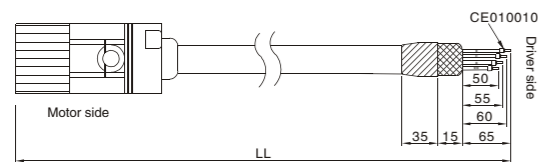
Cable color	Signal	Pin#
Yellow	U	PIN2
Red	V	PIN3
Black	W	PIN4
Yellow-green	PE	PIN1
metal ring	Shield	Shield cable

**BRA-LL-KL**  
Wire spec. 2 x 20AWG



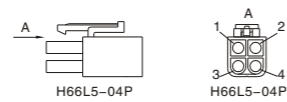
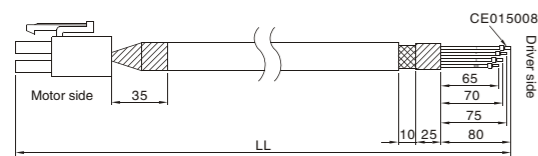
Cable color	Signal	Pin#
Red	break+	PIN1
Blue	break-	PIN2

**MOT-005-LL-KM1**  
Wire spec. UI20328 4C x 18AWG(41/0.16T) black



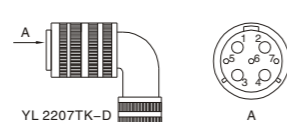
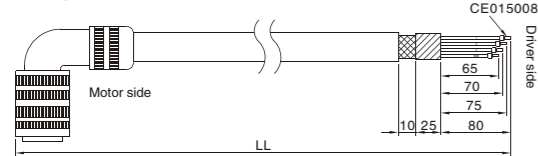
MOT-005-LL-KM1		
Cable Color	Signal	PIN #
Yellow	U	PIN1
Red	V	PIN2
Black	W	PIN3
Yellow-green	PE	⊥

**MOT-008-LL-KL**  
Wire spec. cable 4C x 1.5mm<sup>2</sup>



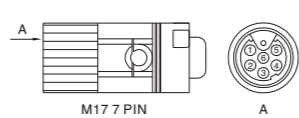
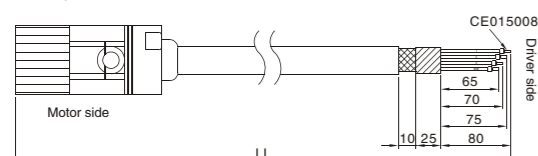
MOT-008-LL-KL		
Cable Color	Signal	PIN #
1	U	PIN1
2	V	PIN2
3	W	PIN3
Yellow-green	PE	PIN4

**MOT-008-LL-KC1**  
Wire spec. cable 4C x 1.5mm<sup>2</sup>



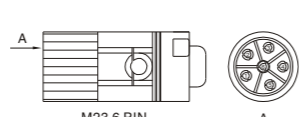
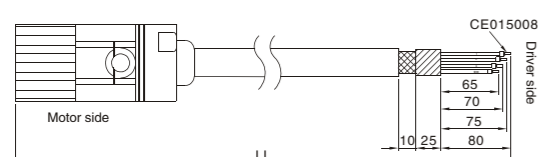
MOT-008-LL-KC1		
Cable Color	Signal	PIN #
1	U	PIN2
2	V	PIN3
3	W	PIN4
Yellow-green	PE	PIN1

**MOT-008-LL-KM1**  
Wire spec. cable 4C x 1.5mm<sup>2</sup>



MOT-008-LL-KM1		
Cable Color	Signal	PIN #
1	U	PIN1
2	V	PIN2
3	W	PIN3
Yellow-green	PE	⊥

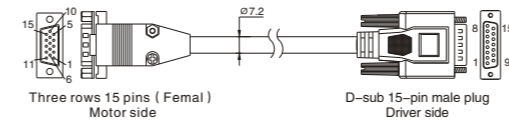
**MOT-008-LL-KM2**  
Wire spec. cable 4C x 1.5mm<sup>2</sup>



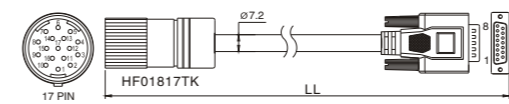
MOT-008-LL-KM2		
Cable Color	Signal	PIN #
1	U	PIN1
2	V	PIN2
3	W	PIN4
Yellow-green	PE	PIN3

# Wiring Diagram for The Encoder Cable

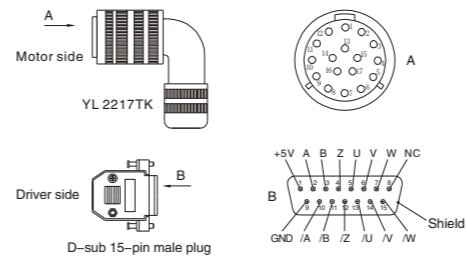
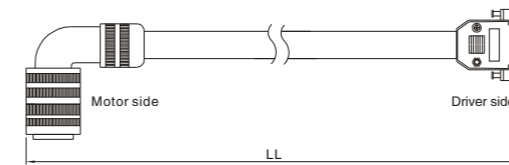
**ENCCA-LL-KH**  
Wire spec. 1P x 24AWG(7/0.20T)+7P x 28AWG(7/0.127T)



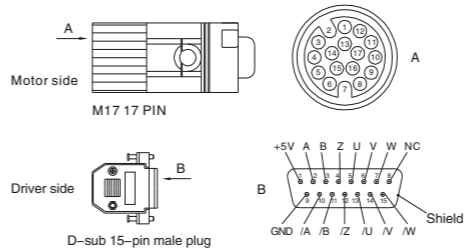
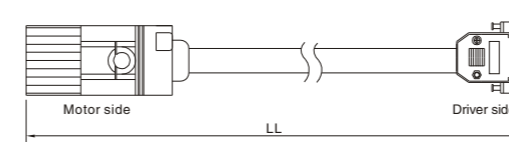
**ENCCA-LL-KC0**  
Wire spec. 1P x 24AWG(7/0.20T)+7P x 28AWG(7/0.127T)



**ENCCA-LL-KC1**  
Wire spec. 1P x 24AWG(7/0.20T)+7P x 28AWG(7/0.127T)



**ENCCA-LL-KM1**  
Wire spec. 1P x 24AWG(7/0.20T)+7P x 28AWG(7/0.127T)



ENCCA-LL-KH				
15PIN DB	15PIN DB	Signal	External wire colour	Motor wire colour
PIN1	PIN1	+5V	Red(thick)	Red
PIN2	PIN2	A	Orange	Blue
PIN3	PIN3	B	Yellow	Green
PIN4	PIN4	Z	Green	Yellow
PIN5	PIN5	U	Brown	Brown
PIN6	PIN6	V	Purple	Gray
PIN7	PIN7	W	Blue	White
PIN9	PIN9	GND	Black(thick)	Black
PIN10	PIN10	/A	Orange-white	Blue-black
PIN11	PIN11	/B	Yellow-white	Green-black
PIN12	PIN12	/Z	Green-white	Yellow-black
PIN13	PIN13	/U	Brown-white	Brown-black
PIN14	PIN14	/V	Purple-white	Gray-black
PIN15	PIN15	/W	Blue-white	White-black
DB metal shell	DB metal shell	Shield	Shield	Shield

ENCCA-LL-KC0/ENCCA-LL-KC1				
17PIN	15PIN DB	Signal	External wire colour	Motor wire colour
PIN1	PIN1	+5V	Red(thick)	Red
PIN3	PIN2	A	Orange	Blue
PIN5	PIN3	B	Yellow	Green
PIN14	PIN4	Z	Green	Yellow
PIN9	PIN5	U	Brown	Brown
PIN11	PIN6	V	Purple	Gray
PIN16	PIN7	W	Blue	White
PIN2	PIN9	GND	Black(thick)	Black
PIN4	PIN10	/A	Orange-white	Blue-black
PIN6	PIN11	/B	Yellow-white	Green-black
PIN15	PIN12	/Z	Green-white	Yellow-black
PIN10	PIN13	/U	Brown-white	Brown-black
PIN12	PIN14	/V	Purple-white	Gray-black
PIN17	PIN15	/W	Blue-white	White-black
Internal metal ring	DB metal shell	Shield	Shield	Shield

ENCCA-LL-KM1				
17PIN	15PIN DB	Signal	External wire colour	Motor wire colour
PIN1	PIN1	+5V	Red(thick)	Red
PIN3	PIN2	A	Orange	Blue
PIN5	PIN3	B	Yellow	Green
PIN14	PIN4	Z	Green	Yellow
PIN9	PIN5	U	Brown	Brown
PIN11	PIN6	V	Purple	Gray
PIN16	PIN7	W	Blue	White
PIN2	PIN9	GND	Black(thick)	Black
PIN4	PIN10	/A	Orange-white	Blue-black
PIN6	PIN11	/B	Yellow-white	Green-black
PIN15	PIN12	/Z	Green-white	Yellow-black
PIN10	PIN13	/U	Brown-white	Brown-black
PIN12	PIN14	/V	Purple-white	Gray-black
PIN17	PIN15	/W	Blue-white	White-black
Internal metal ring	DB metal shell	Shield	Shield	Shield