BONMET SERVO SYSTEM

BONMET—*SA* Series

Selection Manual For Motor And Drive

SMART & ACCURATE

BONMET (Huanggang) Machinery Co., Ltd

Smart & Accurate

BONMET SERVO SYSTEM

High Performance

- **All-in-one control mode**

  Can be used for selecting different control mode by merely switching the appropriate parameters:
  ①Position mode；②Speed mode；③Torque mode；④JOG mode；⑤Point-to-point mode.

- **Positioning for single-axis function**

  SA-series servo drives built-in 16-node single-axis positioning function, communication interface RS-232 connects directly with the touch screen without the need for PLC or motion Controller.

- **Analysis for servo system function**

  Servofly is the dedicated software of SA- series servo drive with strong function and convenient operation, enabling users to edit, send, compare and initialize all the parameters and monitor signals, alarms, system status, etc.

Various Servo System

- **Support for wide range of motor specifications**

  BONMET over 25 different models of servo including the SM series and JSF series; we are also continually developing new products.

- **Various servo drive specifications**

  SA- series servo drives go from 0.4KW to 5.5KW and have been widely used in various industrial environments.

Quality Assurance

- **Servo Motor**

  Our range of servo motors are optimized to be used with our range of servo drivers and utilize thermostable permanent magnet materials of high-magnetic viscosity, the motors are designed to have a long life. The protection degree is IP65, especially suits for industrial environment.

- **Servo Drive**

  Professional system design and PID control algorithm add up to seamless connection between motor and servo drive, proper parameter settings will lead to perfect performance.

Contents

Model Description

BONMET SA

●SM Series Servo Motor Model

SM	110	050	30	L	F	B	Z
1	2	3	4	5	6	7	8

1：Permanent magnet synchronous AC servo motor of sine-wave drive.
2：External diameter, unit: mm.
3：Zero-speed torque, the value is the three digit number multiplied 0.1, unit: Nm.
4：Nominal speed, the value is the two digit number multiplied 100, unit: rpm.
5：Operating voltage, L—AC220V，H—AC380V.
6：Feedback component specifications, F—Compound incremental encoder (With halls wires)（2500 C/T）; F1—incremental encoder (Without halls wires)；R—Resolver.
7：Motor model, B—basic.
8：Motor with holding brake.

●JSF Series Servo Motor Model

JSF	60	40	30	D	F	1000
1	2	3	4	5	6	7

1：Brushless DC Servo Motor.
2：External diameter, unit: mm.
3：Nominal power, the unit is 10w, for example, 40 means 40×10w=2000w.
4：Nominal speed, the unit is 100rpm, for example, 30 means 30×100rpm=3000rpm.
5：Nominal voltage, A: 24V; B: 36V; C: 48V; D: 72V.
6：Assembly options，K—Keyway；F—Flat axis；S—Optical axis; G—Gearbox ready；P—Customer specific product.
7：Encoder resolution.

●The Model Of SA Series Servo Drive

SA	3L	10	B	XX
1	2	3	4	5

1：Drive type: SA Universal servo drive;
2：External power: 1L—single-phase AC220V（1Φ220V）；3L—three-phase AC220V（3Φ220V）；3H—three-phase AC380V (3Φ380V);
3：Specification symbol for drive (10 = nominal current of 10A; Specification symbol);
4：Power specification code;
5：Software customized logo.

Specification

BONMET *SA*

Servo motor			Main parameter			BONMET servo drive configuration		
Series		Model	Nominal torque	Nominal speed	Nominal power	SFC	SFC+	High-voltage
JSF series	42 series	JSF 42- 3-30-AS-1000	0.1 Nm	3000rpm	32W	SA3L04C	SA3L04C	—
	57 series	JSF 57-15-30-BF-1000	0.5 Nm	3000rpm	0.15kW	SA3L04C	SA3L04C	—
	60 series	JSF 60-15-30-CF-1000	0.5 Nm	3000rpm	0.15 kW	SA3L04C	SA3L04C	—
		JSF 60-40-30-DF-1000	1.3 Nm	3000rpm	0.4 kW	SA3L04C	SA3L04C	—
SM series	80 series	SM 80-013-30 LFB	1.3 Nm	3000rpm	0.4 kW	SA3L04C	SA3L04C	—
		SM 80-024-30 LFB	2.4 Nm	3000rpm	0.75 kW	SA3L04C	SA3L06B	—
		SM 80-033-30 LFB	3.3 Nm	3000rpm	1.0 kW	SA3L04C	SA3L06B	—
	110 series	SM 110-020-30 LFB	2 Nm	3000 rpm	0.6 kW	SA3L04C	SA3L06B	SA3H10C
		SM 110-040-30 LFB	4 Nm	3000 rpm	1.2 kW	SA3L04C	SA3L10B	SA3H10C
		SM 110-050-30 LFB	5 Nm	3000 rpm	1.5 kW	SA3L06B	SA3L10B	SA3H10C
		SM 110-060-20 LFB	6 Nm	2000 rpm	1.2 kW	SA3L06B	SA3L10B	SA3H10C
		SM 110-060-30 LFB	6 Nm	3000 rpm	1.6 kW	SA3L10B	SA3L10C	SA3H10C
	130 series	SM 130-040-25 LFB	4 Nm	2500 rpm	1.0 kW	SA3L04C	SA3L06B	SA3H10C
		SM 130-050-25 LFB	5 Nm	2500 rpm	1.3 kW	SA3L04C	SA3L10B	SA3H10C
		SM 130-060-25 LFB	6 Nm	2500 rpm	1.5 kW	SA3L06B	SA3L10B	SA3H10C
		SM 130-077-20 LFB	7.7 Nm	2000 rpm	1.6 kW	SA3L10B	SA3L10C	SA3H10C
		SM 130-077-30 LFB	7.7 Nm	3000 rpm	2.4 kW	SA3L10B	SA3L10C	SA3H10C
		SM 130-100-15 LFB	10 Nm	1500 rpm	1.5 kW	SA3L06B	SA3L10B	SA3H10C
		SM 130-100-25 LFB	10 Nm	2500 rpm	2.6 kW	SA3L10B	SA3L15C	SA3H10C
		SM 130-150-15 LFB	15 Nm	1500 rpm	2.3 kW	SA3L10B	SA3L15C	SA3H10C
		SM 130-150-25 LFB	15 Nm	2500 rpm	3.8 kW	SA3L15C	SA3L25C	—
	150 series	SM 150-150-25 LFB	15 Nm	2500 rpm	3.8 kW	SA3L15C	SA3L25C	—
		SM 150-180-20 LFB	18 Nm	2000 rpm	3.6 kW	SA3L15C	SA3L25C	—
		SM 150-230-20 LFB	23 Nm	2000 rpm	4.7 kW	SA3L15C	SA3L25C	—
		SM 150-270-20 LFB	27 Nm	2000 rpm	5.5 kW	SA3L15C	SA3L25C	—

Configuration description: SFC suits for low overload, low on-off frequency, high speed and low load situation; SFC+ suits for high overload, high on-off frequency, high speed and high load situation; high-voltage model suits for high power and high voltage industrial environment.

● 80 Series Motor Parameters

Model	SM80-013-30 LFB				SM 80-024-30 LFB				SM 80-033-30 LFB			
Power (kW)	0.4				0.75				1.0			
Nominal torque (Nm)	1.3				2.4				3.3			
Nominal speed (rpm)	3000				3000				3000			
Nominal current (A)	2.6				4.2				4.2			
Rotor inertia(kg·m^2)	0.61×10^{-4}				1.06×10^{-4}				1.37×10^{-4}			
Mechanical time constant (ms)	1.38				0.95				0.85			
Encoder line number (C/T)	2500C/T（Less-wire）											
Motor winding plug	Winding lead wire	U			V				W			⏚
	Plug number	2			3				4			1
Encoder plug	Signal	5V	0V	A+	A-	B+	B-	Z+	Z-	⏚		
	Plug number	2	3	4	7	5	8	6	9	1		
Insulation class	B											
Environment	Ambient temperature: 0～55℃ Ambient humidity: 90% or less（non-condensation）											
Protection degree	IP65											
Weight (kg)	2.1				2.7				3.2			

● BONMET Servo Drive

Model	SA3L04C	SA3L04C （SA3L06B）	SA3L04C （SA3L06B）
Operating voltage(AC)	3ΦAC220V -15%～+10% 50/60Hz		
Environment	Operating temperature: 0～40℃; Storage temperature: -40～50℃ Ambient humidity: 80% or less（non- condensation） Vibration: 0.5G（4.9m/S^2） or less, 10～60Hz（Non-continuous operation）		
Torque-Speed characteristics	Figure 1	Figure 2-A（Figure 2-B）	Figure 3-A（Figure 3-B）

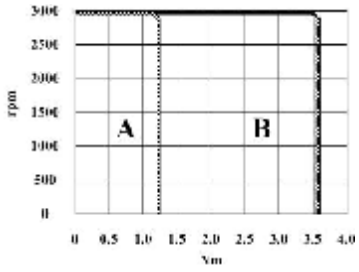


Figure 1

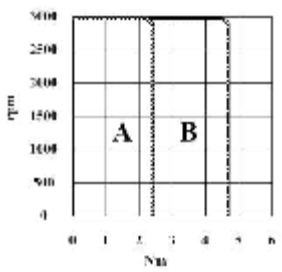


Figure 2-A

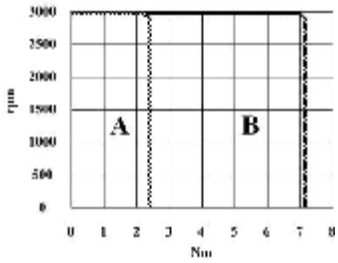


Figure 2-B

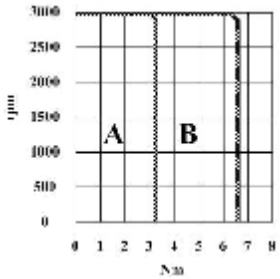


Figure 3-A

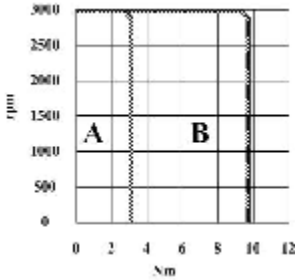


Figure 3-B

Note: Interval A- Continuous duty zone; Interval B- Intermittent duty zone; X-A for SFC configuration, X-B for SFC+ configuration.

● 110 Series Motor Parameters

Model	SM 110-020-30LFB	SM 110-040-30LFB	SM 110-050-30LFB	SM 110-060-20LFB	SM 110-060-30LFB
Power (kW)	0.6	1.2	1.5	1.2	1.6
Nominal torque (Nm)	2	4	5	6	6
Nominal speed (rpm)	3000	3000	3000	2000	3000
Nominal current (A)	4.0	5.0	6.0	6.0	8.0
Rotor inertia (kgm^2)	0.33×10^{-3}	0.65×10^{-3}	0.82×10^{-3}	1.0×10^{-3}	1.0×10^{-3}
Mechanical time constant (ms)	3.64	2.32	2.03	1.82	1.82
Encoder line number (C/T)	2500C/T（A、B、Z、U、V、W）				
Motor winding plug	Winding lead wire	U	V	W	⏚
	Plug number	2	3	4	1
Encoder plug	Signal	5V 0V A+ A- B+ B- Z+ Z- U+ U- V+ V- W+ W- ⏚			
	Plug number	2 3 4 7 5 8 6 9 10 13 11 14 12 15 1			
Safe brake	Plug number	1	2	3	
	Power supply	24VDC （-15%～+10%）		⏚	
	Basic parameters	Current: ≤0.6A Brake torque: ≥8 Nm Moment of inertia:0.64×10-4Kgm^2			
Insulation class	B				
Environment	Ambient temperature: 0～55℃ Ambient humidity: 90% or less（non-condensation）				
Protection degree	IP65				
Weight (kg)	4.2	5.2	5.8	6.4	6.4

● BONMET Servo Drive

Model	SA3L04C（SA3L06B）	SA3L04C（SA3L10B）	SA3L06B（SA3L10B）	SA3L06B（SA3L10B）	SA3L10B（SA3L10C）
Operating voltage (AC)	3ΦAC220V -15%～+10% 50/60Hz				
Environment	Operating temperature: 0～40℃; Storage temperature: -40～50℃ Ambient humidity: 80% or less（non-condensation） Vibration: 0.5G（4.9m/S^2） or less，10～60Hz（Non-continuous operation）				
Torque-Speed characteristics	Figure 4-A（Figure 4-B）	Figure 5-A（Figure 5-B）	Figure 6-A（Figure 6-B）	Figure 7-A（Figure 7-B）	Figure 8-A（Figure 8-B）

Torque-Speed characteristics (Nm):

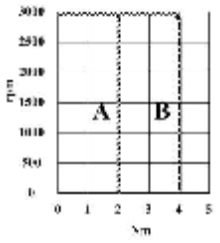


Figure 4-A

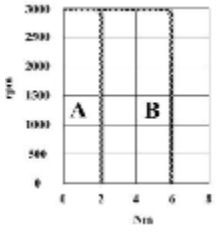


Figure 4-B

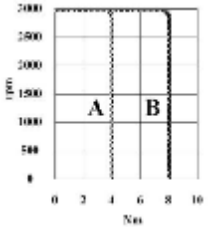


Figure 5-A

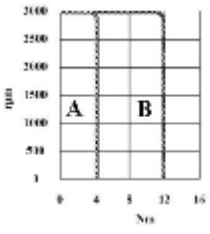


Figure 5-B

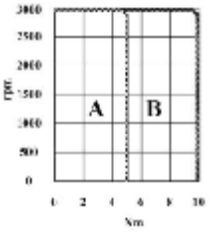


Figure 6-A

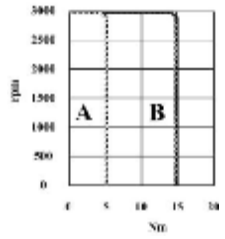


Figure 6-B

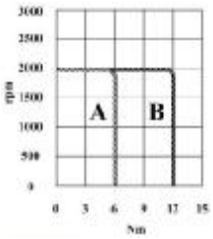


Figure 7-A

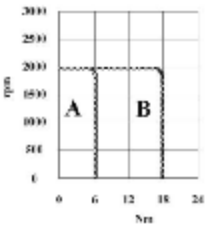


Figure 7-B

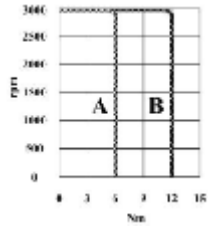


Figure 8-A

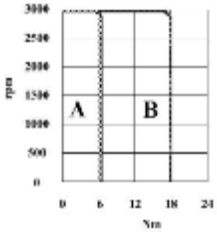


Figure 8-B

Note: Interval A- Continuous duty zone; Interval B- Intermittent duty zone; X-A for SFC configuration, X-B for SFC+ configuration.

● 130 Series Motor Parameters

Model	SM 130-040-25 LFB	SM 130-050-25LFB	SM 130-060-25LFB	SM 130-077-20LFB	SM 130-077-30LFB
Power (kW)	1.0	1.3	1.5	1.6	2.4
Nominal torque (Nm)	4	5	6	7.7	7.7
Nominal speed (rpm)	2500	2500	2500	2000	3000
Nominal current (A)	4.0	5.0	6.0	6.0	9.0
Rotor inertia (kgm^2)	0.85×10^{-3}	1.06×10^{-3}	1.26×10^{-3}	1.58×10^{-3}	1.58×10^{-3}
Mechanical time constant (ms)	3.75	3.07	2.83	2.44	2.44
Encoder line number (C/T)	2500C/T（A、B、Z、U、V、W）				
Motor winding plug	Winding lead wire	U	V	W	⏚
	Plug number	2	3	4	1
Encoder plug	Signal	5V 0V A+ A- B+ B- Z+ Z- U+ U- V+ V- W+ W- ⏚			
	Plug number	2 3 4 7 5 8 6 9 10 13 11 14 12 15 1			
Safe brake	Plug number	1	2	3	
	Power supply	24VDC （-15%～+10%）		⏚	
	Basic parameters	Current: ≤0.6A Brake torque: ≥12 Nm Moment of inertia: 1.67×10-4Kgm^2			
Insulation class	B				
Environment	Ambient temperature: 0～55℃ Ambient humidity: 90% or less（non-condensation）				
Protection class	IP65				
Weight (kg)	7.4	7.9	8.6	9.5	9.5

● BONMET Servo Drive

Model	SA3L06B	SA3L06B	SA3L06B	SA3L06B	SA3L08B
Operating voltage(AC)	3ΦAC220V -15%～+10% 50/60Hz				
Environment	Operating temperature: 0～40℃; Storage temperature: -40～50℃ Ambient humidity: 80% or less（non-condensation） Vibration: 0.5G（4.9m/S^2） or less，10～60Hz（Non-continuous operation）				
Torque-Speed characteristics	Figure 9-A（Figure 9-B）	Figure 10-A（Figure 10-B）	Figure 11-A（Figure 11-B）	Figure 12-A（Figure 12-B）	Figure 13-A（Figure 13-B）

Torque-Speed characteristics (Nm):

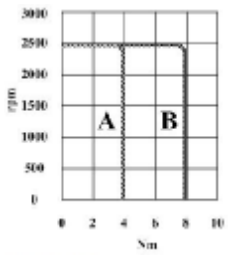


Figure 9-A

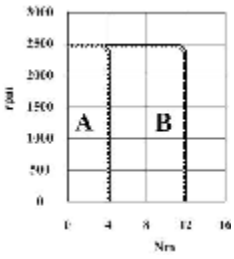


Figure 9-B

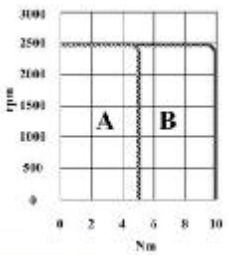


Figure 10-A

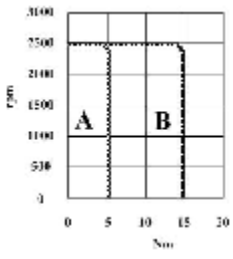


Figure 10-B

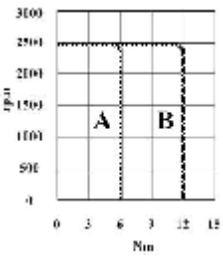


Figure 11-A

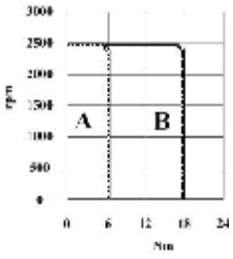


Figure 11-B

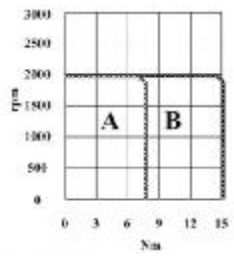


Figure 12-A

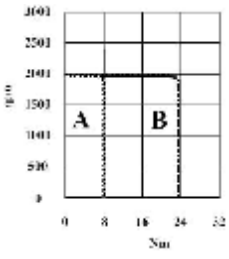


Figure 12-B

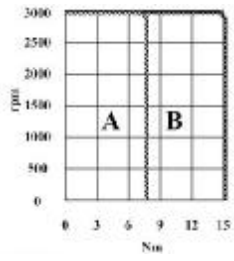


Figure 13-A

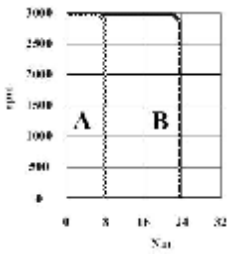


Figure 13-B

Note: Interval A- Continuous duty zone; Interval B- Intermittent duty zone; X-A for SFC configuration, X-B for SFC+ configuration.

● 130 Series Motor Parameters

Model	SM 130-100-15LFB	SM 130-100-25LFB	SM 130-150-15LFB	SM 130-150-25LFB
Power (kW)	1.5	2.6	2.3	3.8
Nominal torque (Nm)	10	10	15	15
Nominal speed (rpm)	1500	2500	1500	2500
Nominal current (A)	6.0	10.0	9.5	17.0
Rotor inertia (kg·m^2)	2.14×10^{-3}	2.14×10^{-3}	3.24×10^{-3}	3.24×10^{-3}
Mechanical time constant (ms)	2.11	2.11	1.88	1.88
Encoder line number (C/T)	2500C/T（A、B、Z、U、V、W）			

Motor winding plug															
	Winding lead wire	U			V			W			⏚				
	Plug number	2			3			4			1				
Encoder plug	Signal	5V	0V	A+	A-	B+	B-	Z+	Z-	U+	U-	V+	V-	W+	W-	⏚
	Plug number	2	3	4	7	5	8	6	9	10	13	11	14	12	15	1
Safe brake	Plug number	1				2						3				
	Power supply	24VDC （-15%～+10%）										⏚				
	Basic parameters	Current: ≤0.6A Brake torque: ≥12 Nm Moment of inertia: 1.67×10-4Kgm^2														

Insulation class	B			
Environment	Ambient temperature: 0～55℃ Ambient humidity: 90% or less（non-condensation）			
Protection class	IP65			
Weight (kg)	11.1	11.1	14.3	14.3

● BONMET Servo Drive

Model	SA3L06B（SA3L10B）	SA3L10B（SA3L15C）	SA3L10B（SA3L15C）	SA3L15C（SA3L25C）
Operating voltage(AC)	3ΦAC220V -15%～+10% 50/60Hz			
Environment	Operating temperature: 0～40℃; Storage temperature: -40～50℃ Ambient humidity: 80% or less（non-condensation） Vibration: 0.5G（4.9m/S^2） or less，10～60Hz（Non-continuous operation）			
Torque-Speed characteristics	Figure 14-A （Figure 14-B）	Figure 15-A （Figure 15-B）	Figure 16-A （Figure 16-B）	Figure 17-A （Figure 17-B）

Torque-Speed characteristics (Nm):

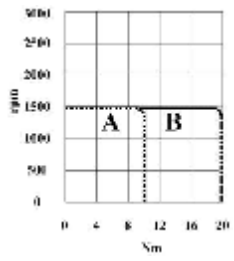


Figure 14-A

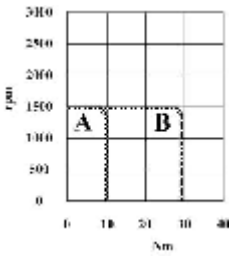


Figure 14-B

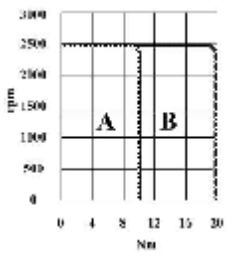


Figure 15-A

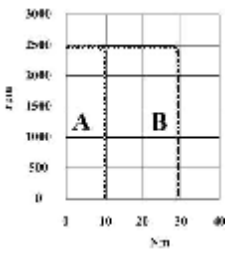


Figure 15-B

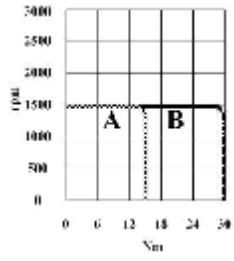


Figure 16-A

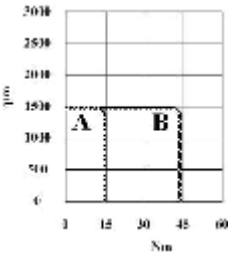


Figure 16-B

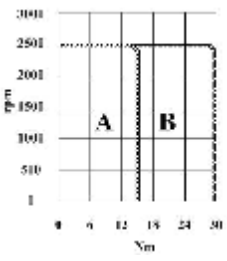


Figure 17-A

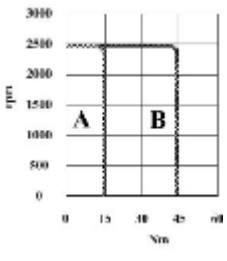


Figure 17-B

Note: Interval A- Continuous duty zone; Interval B- Intermittent duty zone; X-A for SFC configuration, X-B for SFC+ configuration.

● 150 Series Motor Parameters

Model	SM 150-150-25LFB	SM 150-180-20LFB	SM 150-230-20LFB	SM 150-270-20LFB
Power (kW)	3.8	3.6	4.7	5.5
Nominal torque (Nm)	15	18	23	27
Nominal speed (rpm)	2500	2000	2000	2000
Nominal current (A)	16.5	16.5	20.5	20.5
Rotor inertia (kgm^2)	5.2×10^{-3}	6.3×10^{-3}	8.0×10^{-3}	9.4×10^{-3}
Mechanical time constant (ms)	2.43	2.27	2.04	1.95
Encoder line number (C/T)	2500 C/T（A、B、Z、U、V、W）			

Motor winding plug	Winding lead wire	U		V		W		⏚							
	Plug number	2		3		4		1							
Encoder plug	Signal	5V	0V	A+	A-	B+	B-	Z+	Z-	U+	U-	V+	V-	W+	W-	⏚
	Plug number	2	3	4	7	5	8	6	9	10	13	11	14	12	15	1
Safe brake	Plug number	1				2						3				
	Power supply	100VDC （-15%～+10%）										⏚				
	Basic parameters	Current: ≤0.4A Brake torque: ≥30 Nm Moment of inertia: $6\times10\text{-}4Kgm^2$													

Insulation class	B			
Environment	Ambient temperature: 0～55℃ Ambient humidity: 90% or less（non-condensation）			
Protection class	IP65			
Weight (kg)	15.2	17.3	21.0	23.7

● BONMET Servo Drive

Model	SA3L15C（SA3L25C）	SA3L15C（SA3L25C）	SA3L15C（SA3L25C）	SA3L15C（SA3L25C）
Operating voltage (AC)	3ΦAC220V -15%～+10% 50/60Hz			
Environment	Operating temperature: 0～40℃; Storage temperature: -40～50℃ Ambient humidity: 80% or less（non-condensation） Vibration: 0.5G（4.9m/S²） or less，10～60Hz（Non-continuous operation）			
Torque-Speed characteristics	Figure 18-A （Figure 18-B）	Figure 19-A （Figure 19-B）	Figure 20-A （Figure 20-B）	Figure 21-A （Figure 21-B）

Torque-Speed characteristics (Nm):

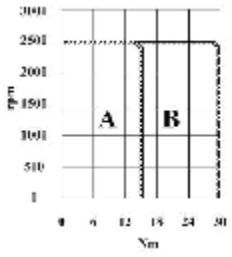


Figure 18-A

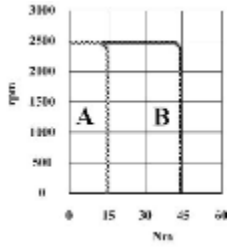


Figure 18-B

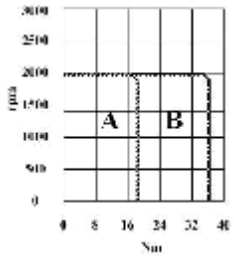


Figure 19-A

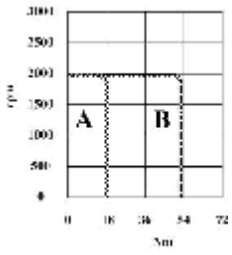


Figure 19-B

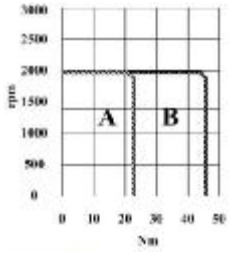


Figure 20-A

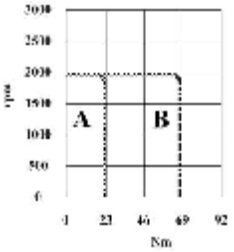


Figure 20-B

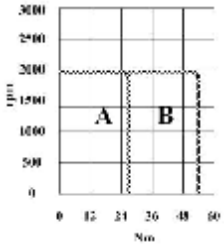


Figure 21-A

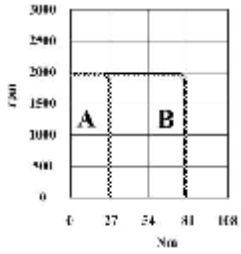
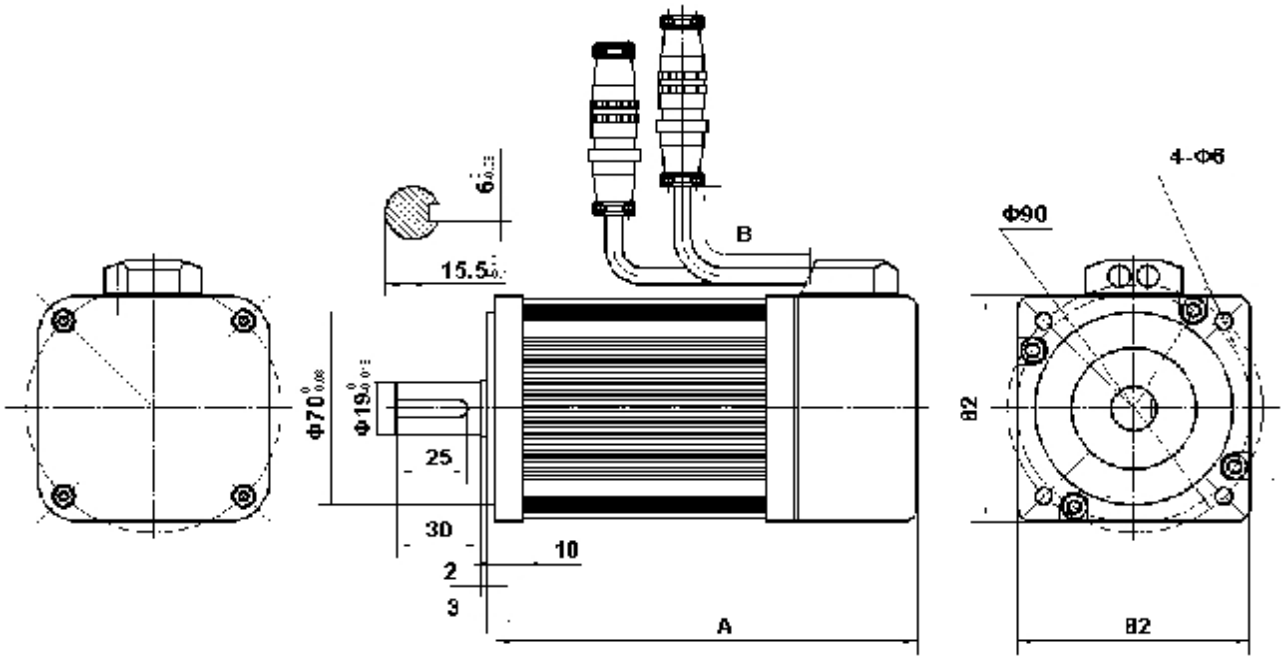


Figure 21-B

Note: Interval A- Continuous duty zone; Interval B- Intermittent duty zone; X-A for SFC configuration, X-B for SFC+ configuration.

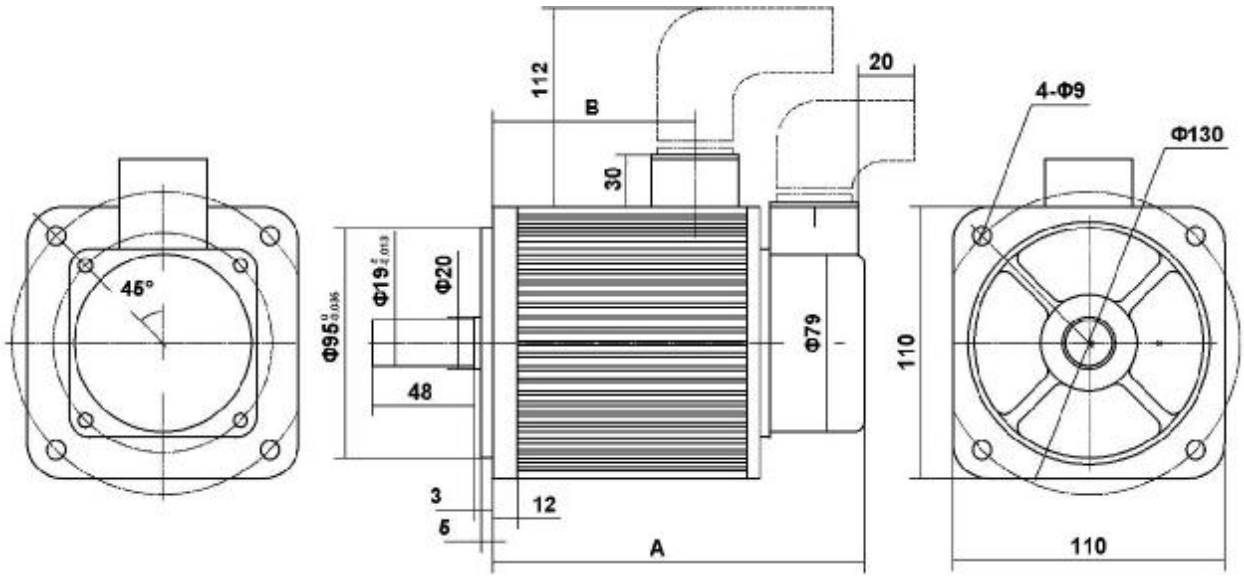
● Installation Dimension

80 series servo motor



Nominal torque(Nm)	1.3	2.4	3.3
A(mm)	128	150	165
B(mm)	500	500	500

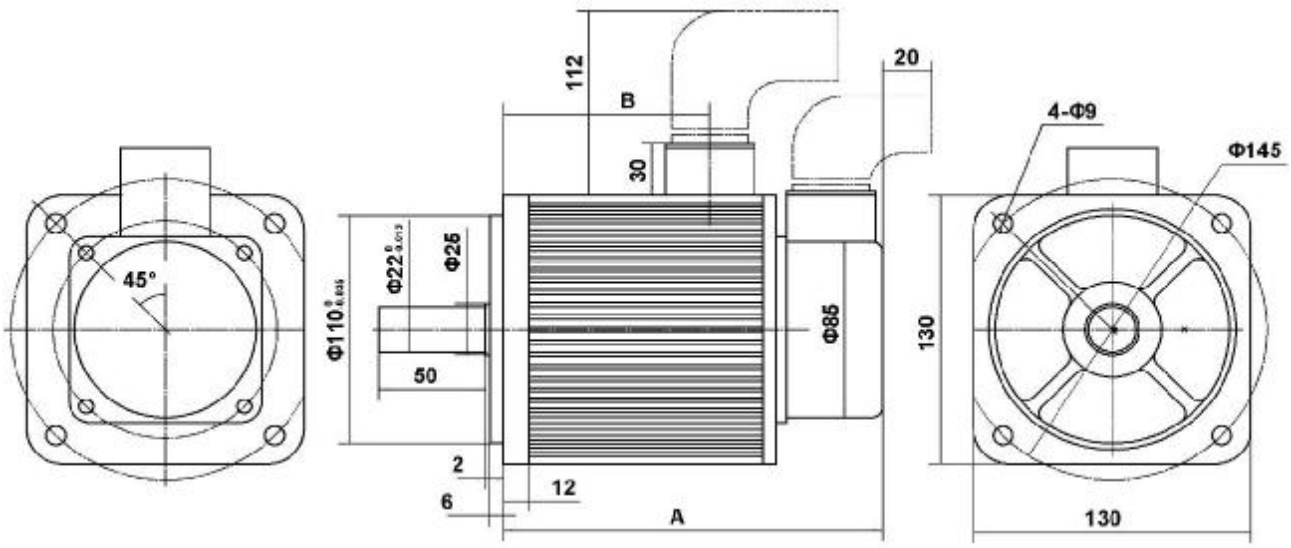
110 series servo motor



Nominal torque (Nm)	2	4	5	6
A(mm)	158（200）	185（271）	200（242）	217（259）
B(mm)	76	102	118	134

Note: the value in brackets is the length of motor with holding brake.

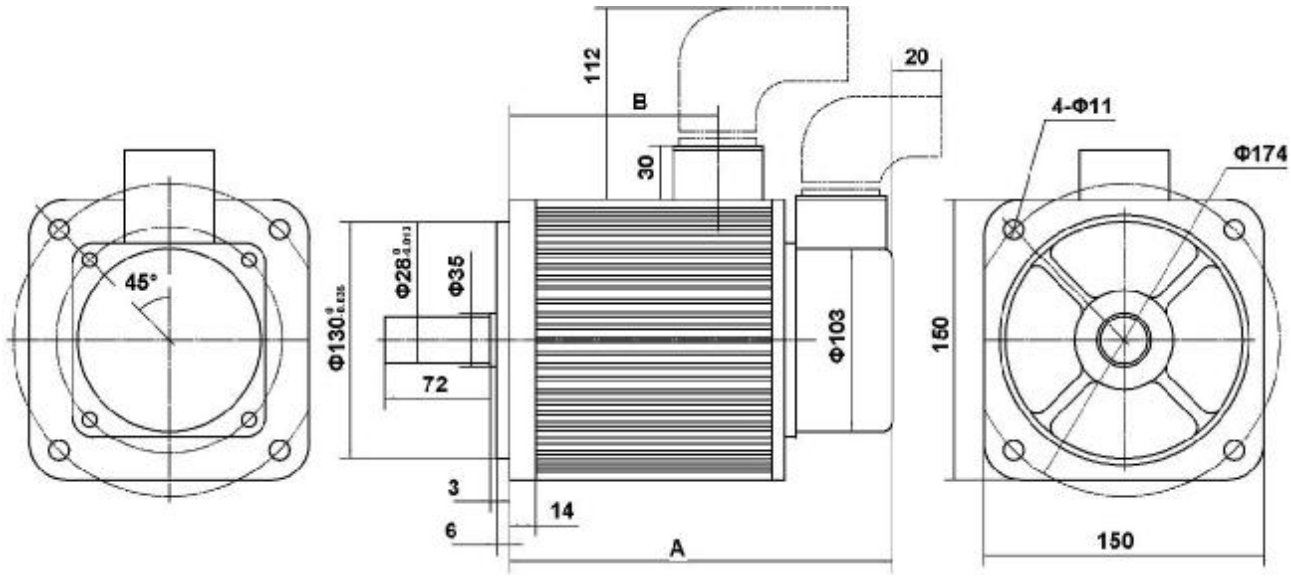
130 series servo motor



Nominal torque(Nm)	4	5	6	7.7	10	15
A(mm)	163（209）	171（213）	181（223）	195（237）	219（261）	267（319）
B(mm)	80	89	98	112	136	184

Note: the value in brackets is the length of motor with holding brake.

150 series servo motor



Nominal torque(Nm)	15	18	23	27
A(mm)	231（292）	250（312）	280（342）	306（368）
B(mm)	146	166	196	222

Note: the value in brackets is the length of motor with holding brake.

JSF Series DC Servo Motor

BONMET SA

Main Features:

1：Large range of speed;

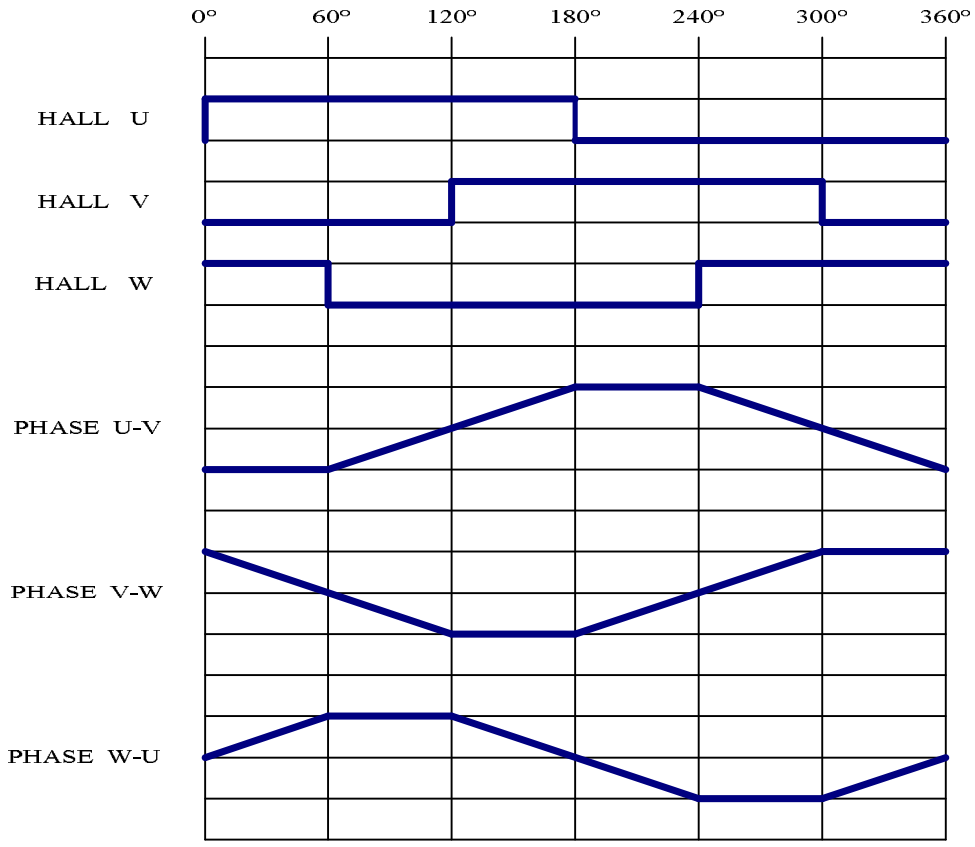
2：Low noise, high efficiency, stable operation;

3：High-performance neodymium boron magnet can provide more than 3 times peak torque.

Parameters

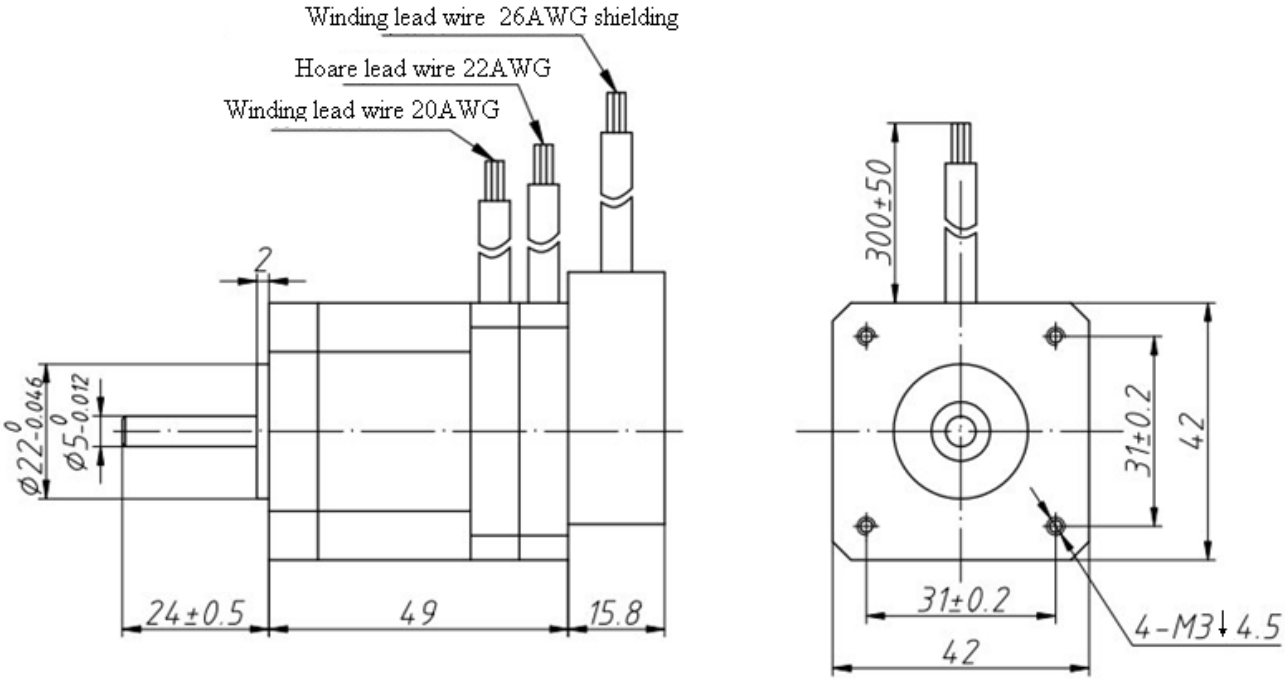
Model	JSF42-3-30-AS-1000	JSF57-15-30-BF-1000	JSF60-15-30-CF-1000	JSF60-40-30-DF-1000
Power (W)	32	150	150	400
Nominal torque(Nm)	0.1	0.5	0.5	1.3
Peak torque(Nm)	0.35	1.75	1.75	4.5
Torque constant (Nm /A)	0.057	0.06	0.069	0.093
Nominal speed (rpm)	3000	3000	3000	3000
Nominal voltage(V)	24	36	48	72
Nominal current(A)	2.3	7.3	5.5	9.3
Pole number	8	8	8	8
Encoder resolution	1000	1000	1000	1000
Weight(kg)	0.42	0.7	1.25	1.8

Timing Diagram

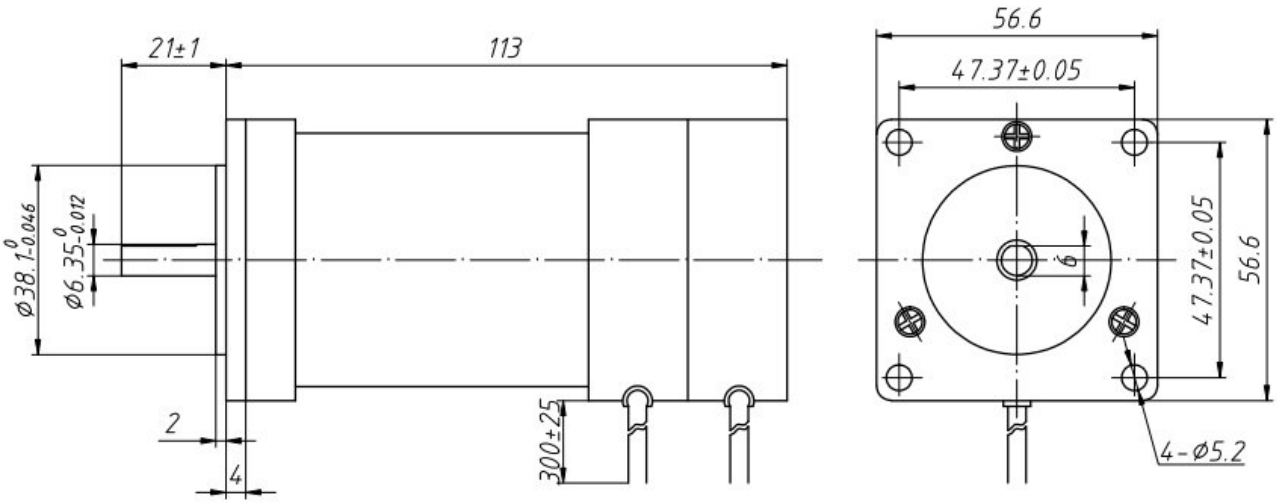


Installation Dimension

JSF 42-3-30-AS-1000

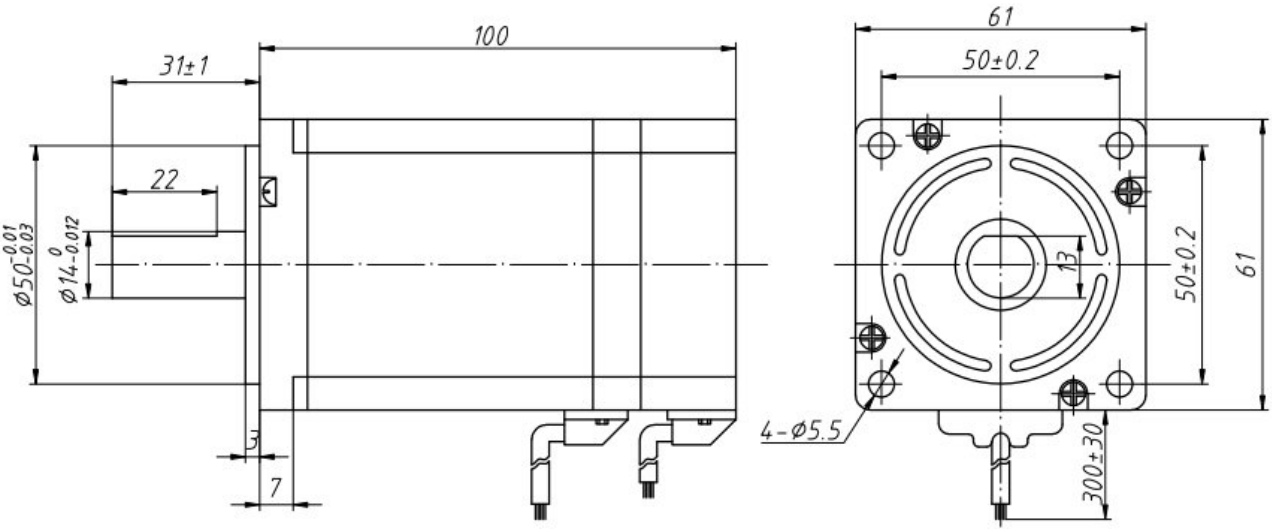


JSF 57-15-30-BF-1000

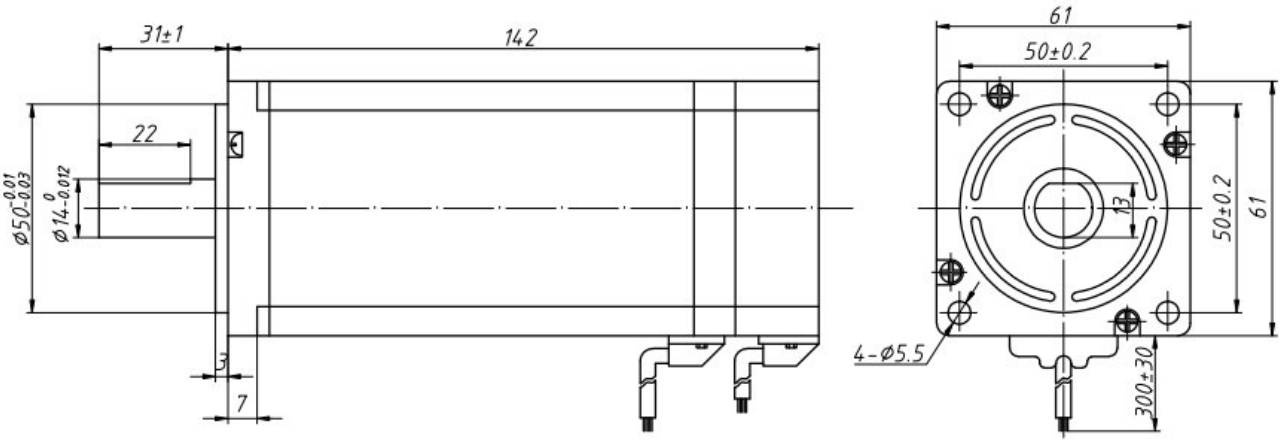


Installation Dimension

JSF 60-15-30-CF-1000



JSF 60-40-30-DF-1000



Servo Drive Specifications

BONMET SA

● General Specifications

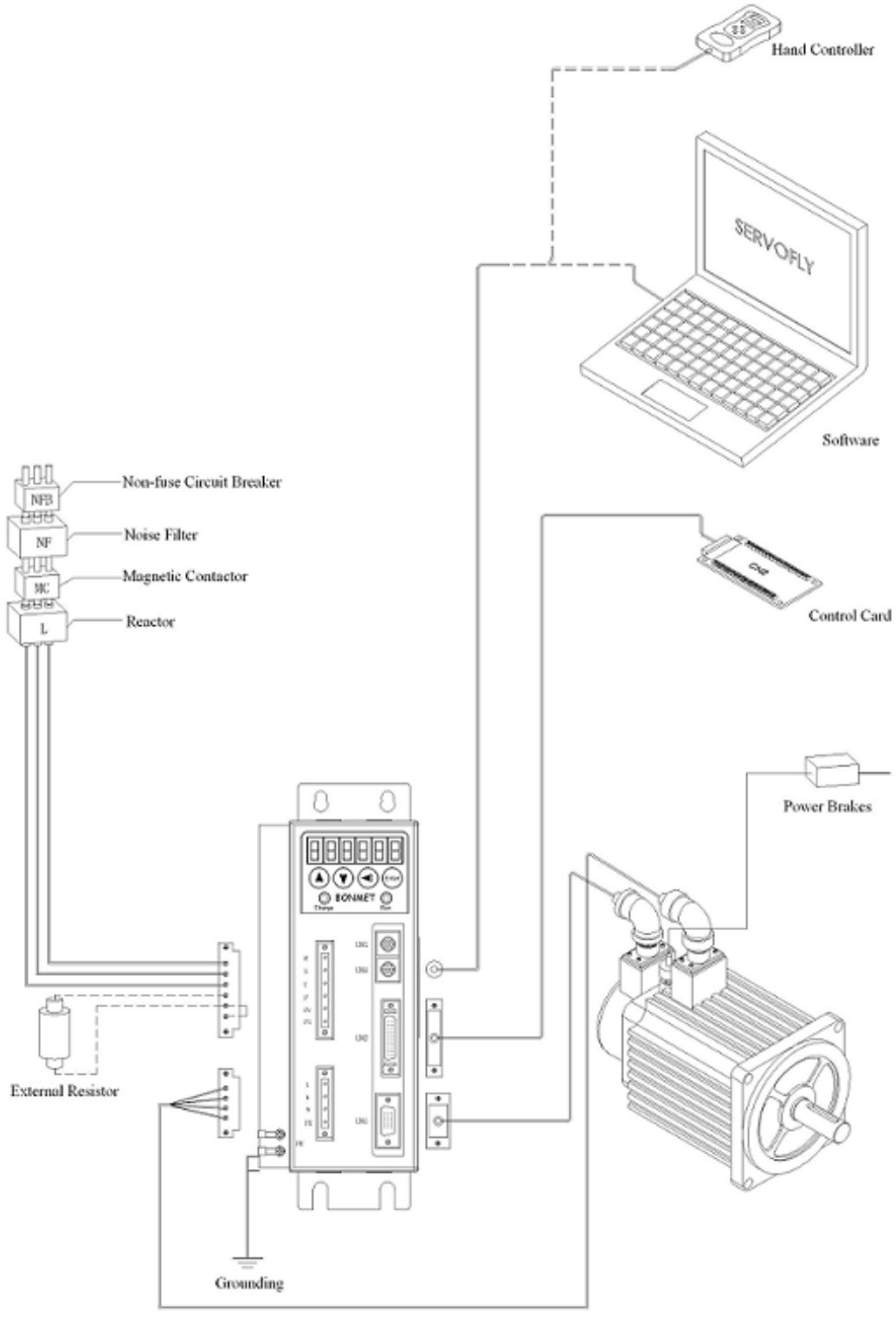
Input power supply		Single-phase or three-phase AC220V -15～+10%　50/60Hz	Three-phase AC380V -15～+10%　50/60Hz
Environment	Ambient temperature	Operation：0～40℃ Storage：-40℃～50℃	
	Ambient humidity	40%～80%(non-condensation)	
	Atmospheric pressure	86～106kPa	
Control mode		①Position ②Speed ③Torque ④JOG ⑤Point-to-point	
Regenerative braking		Internal/External connection	
Features	Speed frequency response	200Hz or higher	
	Speed fluctuation ratio	±0.03 or less(Load 0～100%); ±0.02 or less(Power supply -15～+10%) (Value corresponds to the nominal speed)	
	Speed ratio	1:5000	
	Pulse frequency	500kHz or less	
Control input		①Servo enable ②Alarm Clear ③CCW drive forbidden ④CW drive forbidden ⑤Deviation counter reset/ speed select 1/ zero clamp ⑥command pulse forbidden/ speed select 2 ⑦CCW torque limit ⑧CW torque limit	
Control output		①Output Ready ②Alarm output ③Position complete output / speed reach output	
Position control		Input mode	① Pulse + symbol ②CCW pulse / CW pulse ③Two-phase A / B orthogonal pulse
		Electronic gear	1～32767/1～32767
		Feedback pulse	2500 line/switch
Speed control		Four kinds of internal speed	
Acceleration and deceleration function		Parameter setting :1～10000ms / 1000r/min	
Monitoring function		Speed, current position, accumulation of command pulse, position deviation, motor torque, motor current, straight speed, rotor absolute position, command pulse frequency, operation state, I/O terminal signals, etc.	
Protection function		Overspeed, main power over-voltage/under-voltage, over current, overload, Brake error, encoder error, control power error, location tolerance, etc.	
Applicable load inertia		Less than five times of motor inertia	

● Single Specifications

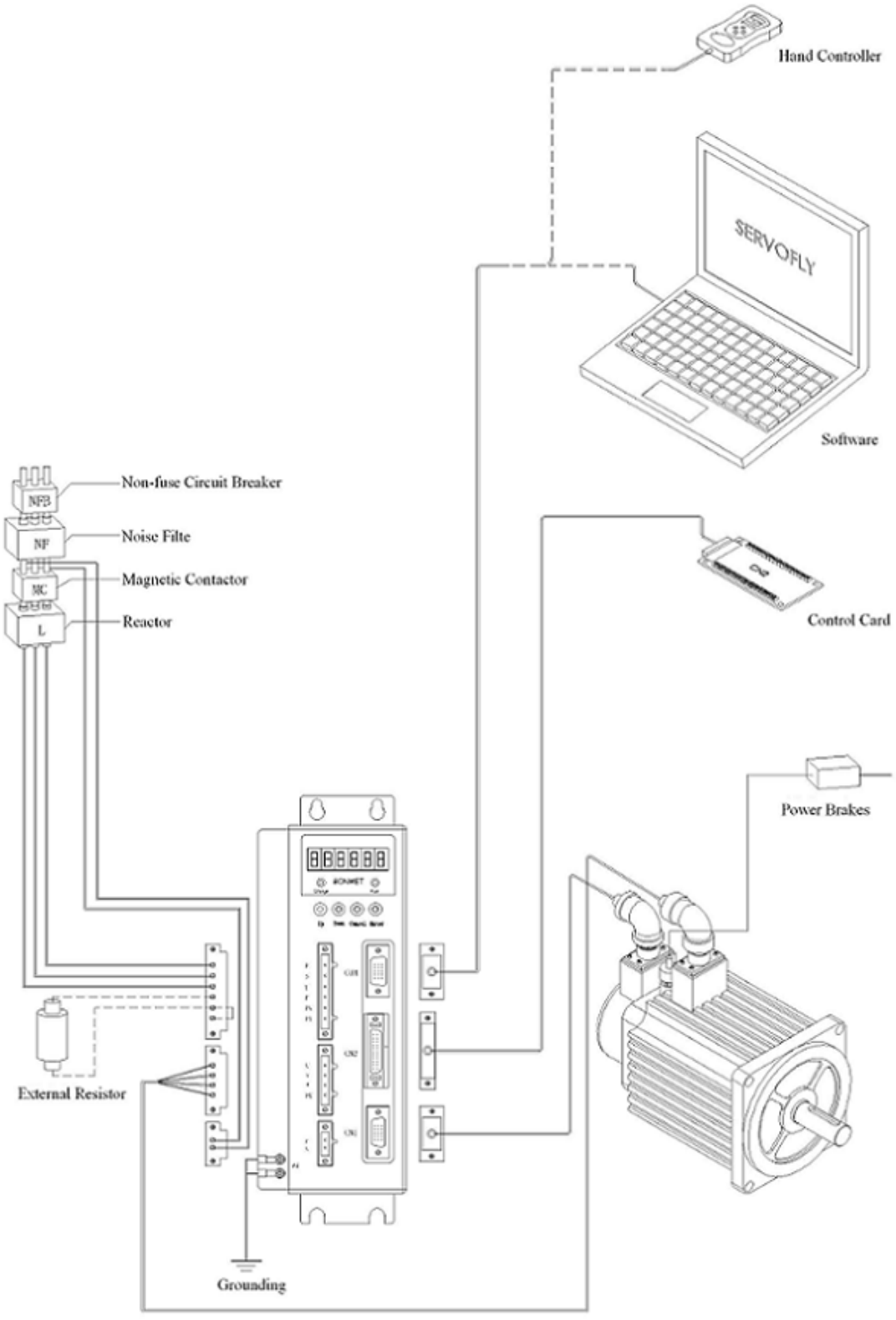
Model	SA3L04C	SA3L06B	SA3L10B	SA3L15C	SA3L25C	SA3H10C
Input power supply	single/three-phase AC 220V	single/three-phase AC 220V	single/three-phase AC 220V	single/three-phase AC 220V	single/three-phase AC 220V	three-phase AC380V/220V
Nominal current	4A	6A	10A	15A	25A	10A
Maximum instant current	11.312A	16.968A	28.28A	42.42A	70.7A	28.28A
Terminal line diameter of R,S,T	≥1.5mm^2 (AWG14-15)	≥2.0mm^2 (AWG12-13)	≥2.0mm^2 (AWG12-13)	≥2.5mm^2 (AWG11)	≥5mm^2 (AWG9)	≥2.0mm^2 (AWG12-13)
Terminal line diameter of U,V,W,PE						
Terminal line diameter of r,t	≥1.0mm^2 (AWG16-18)	≥1.0mm^2 (AWG16-18)	≥1.0mm^2 (AWG16-18)	≥1.0mm^2 (AWG16-18)	≥1.5mm^2 (AWG16-18)	≥1.0mm^2 (AWG16-18)

Note: Momentary maximum current equals to the maximum theoretical value that drive can sustain in a short time, it's very dangerous when the servo drive works at a large current.

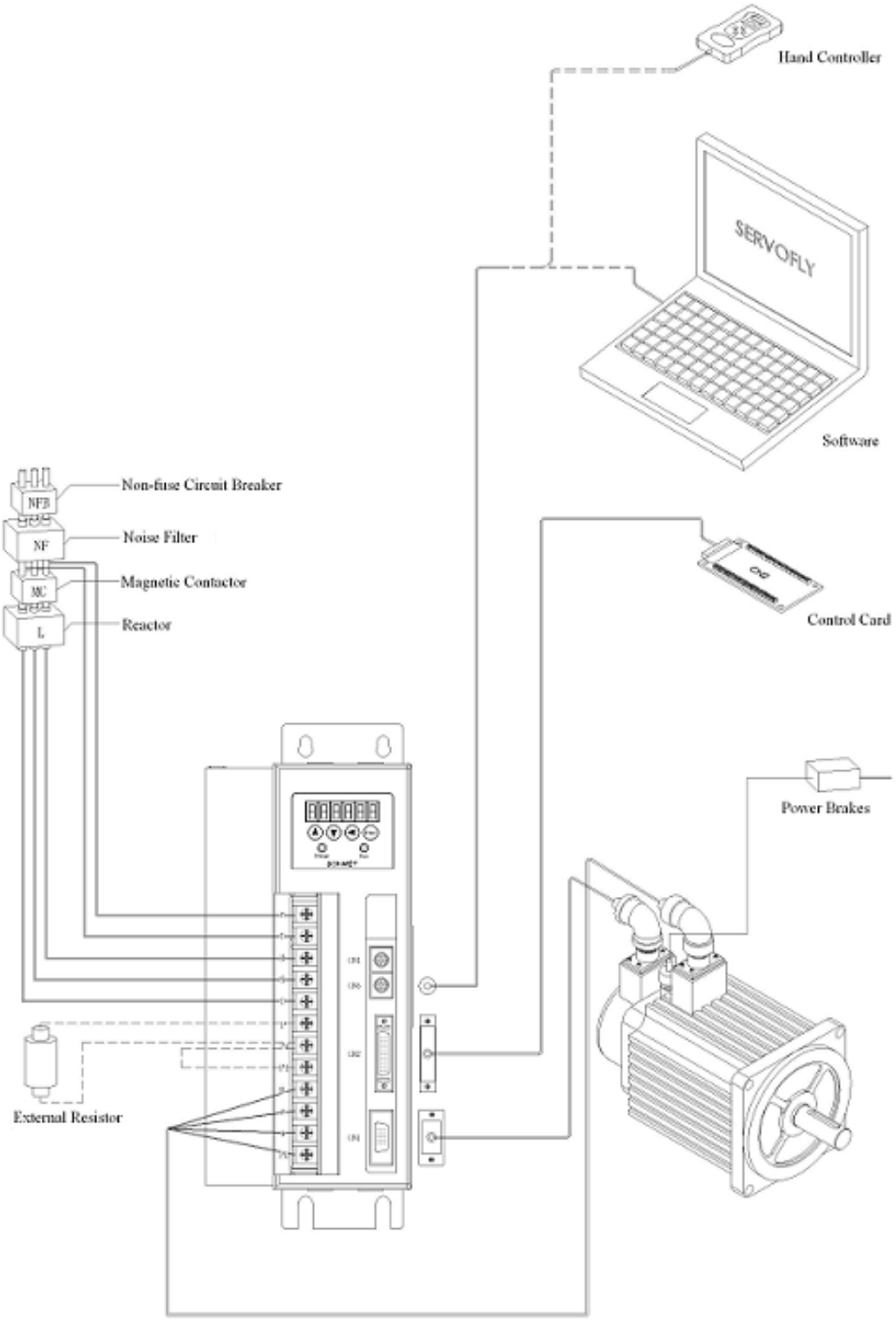
- SA3L04C


Hand Controller
SERVOFLY
Software
NFB
Non-fuse Circuit Breaker
NF
Noise Filter
MC
Magnetic Contactor
L
Reactor
Control Card
Power Brakes
External Resistor
Grounding

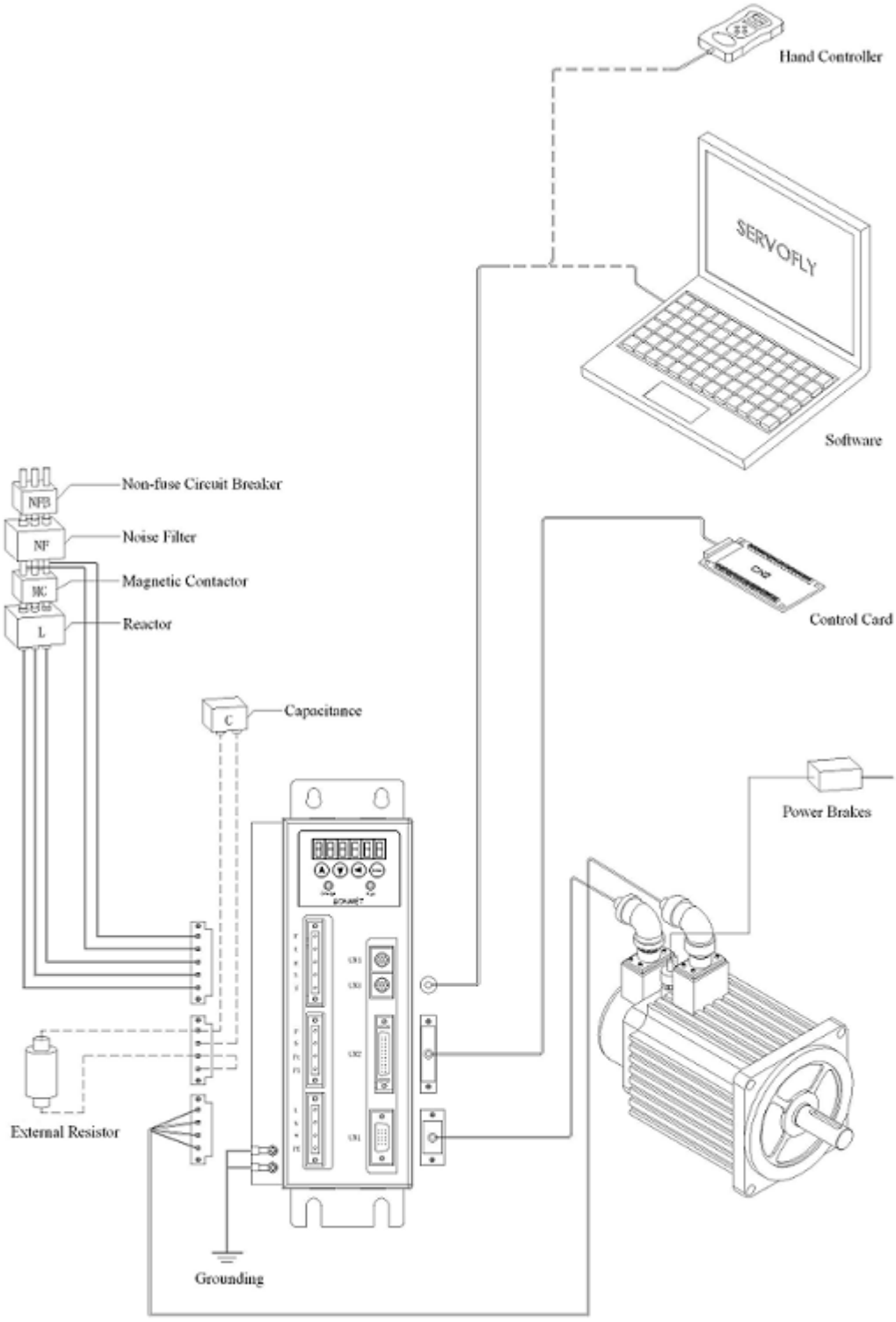
- SA3L06B/SA3L10B



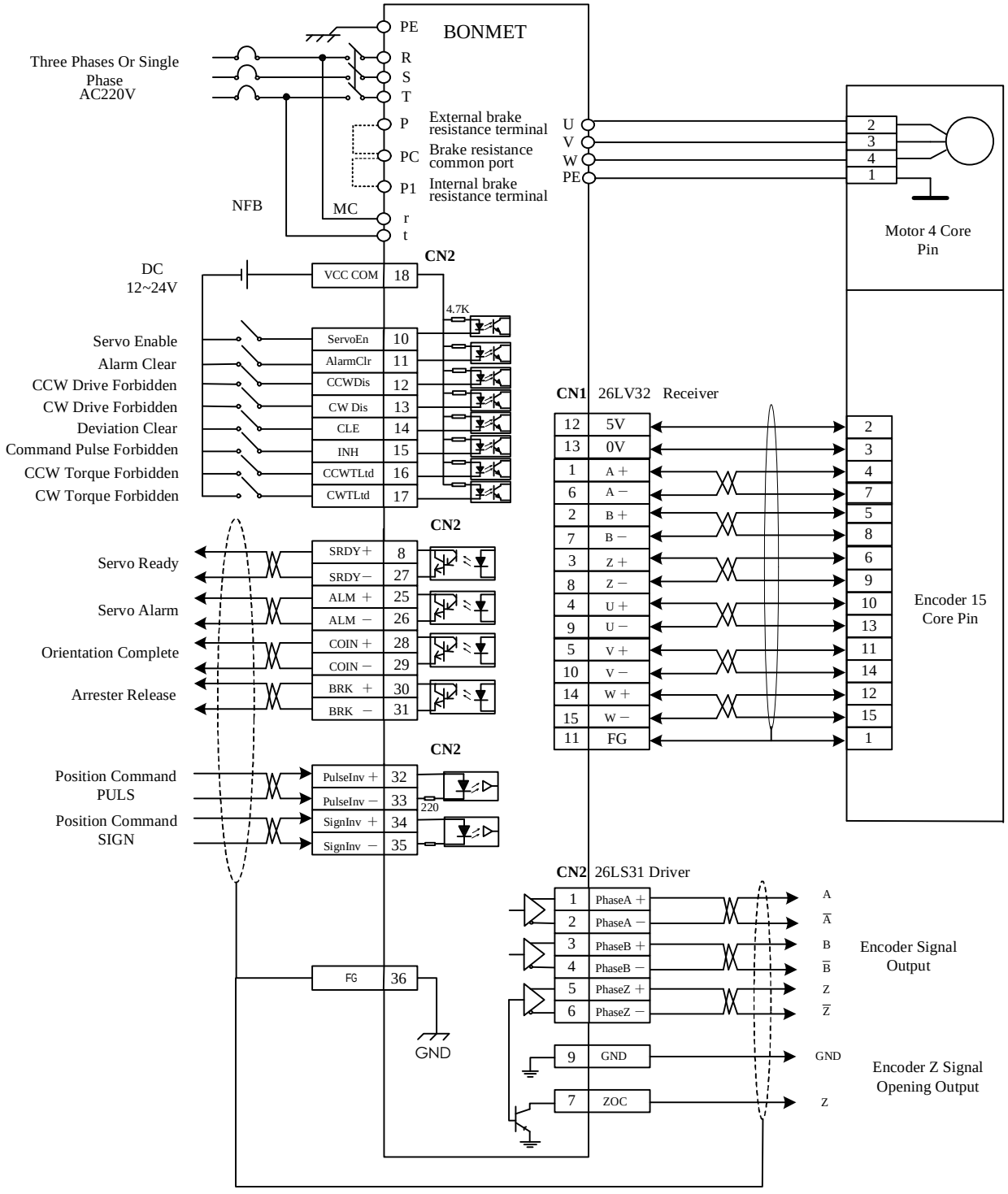
- SA3L25C


Hand Controller
SERVOFLY
Software
Non-fuse Circuit Breaker
Noise Filter
Magnetic Contactor
Reactor
NFB
NF
MC
L
Control Card
Power Brakes
External Resistor

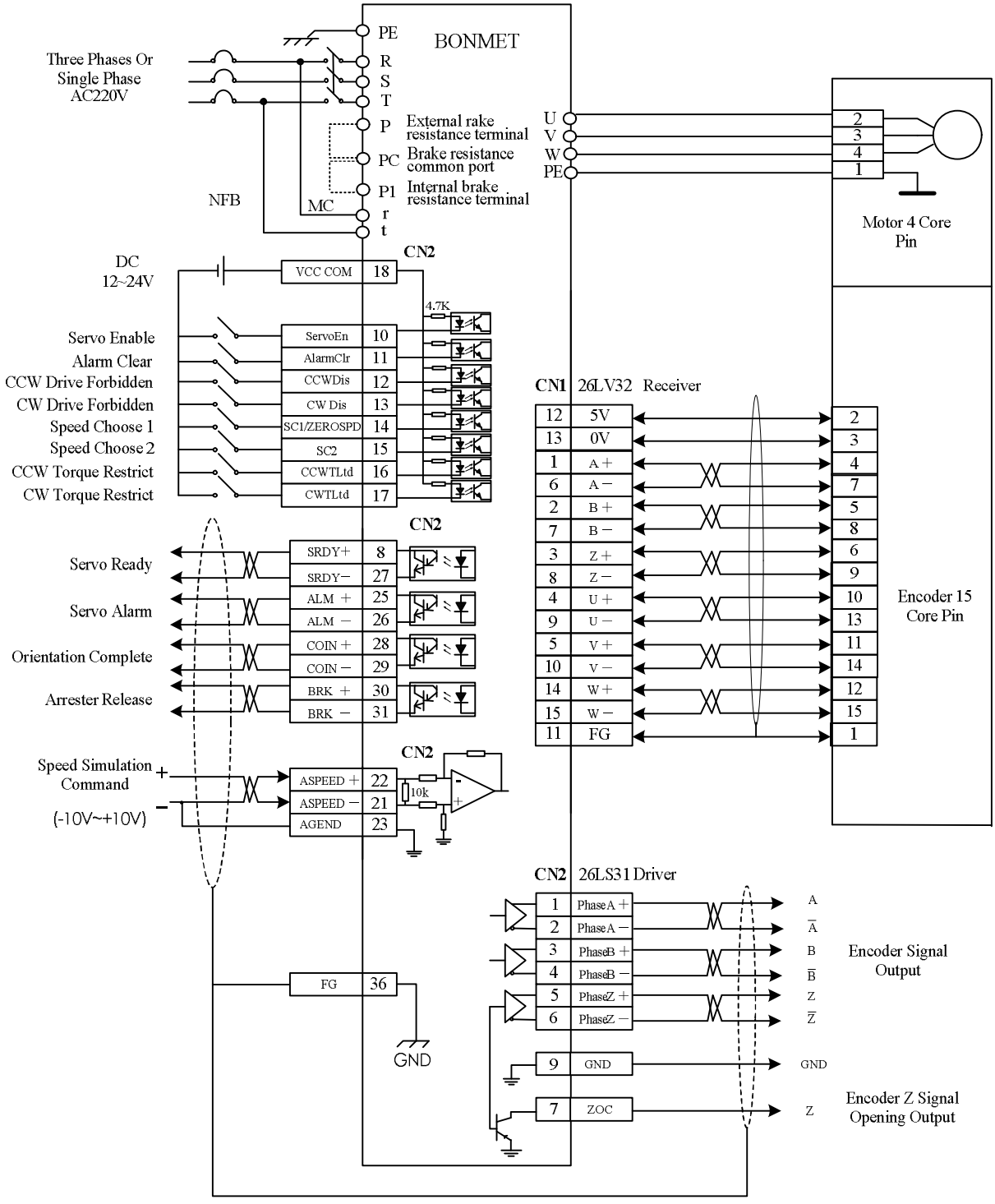
- SA3H10C


Hand Controller
SERVOFLY
Software
NFB
Non-fuse Circuit Breaker
NF
Noise Filter
MC
Magnetic Contactor
L
Reactor
Control Card
C
Capacitance
Power Brakes
External Resistor
Grounding

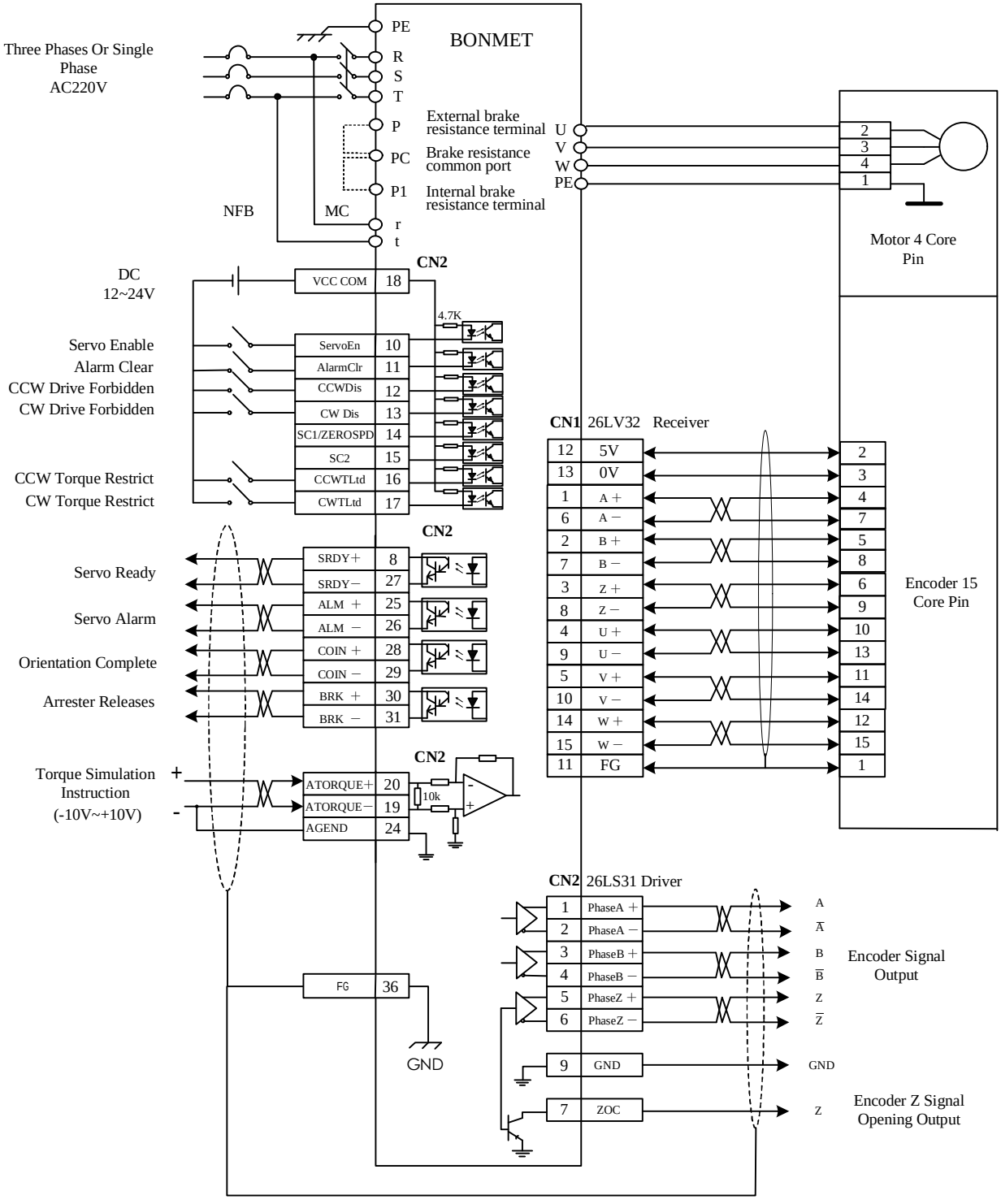
Position Control Mode



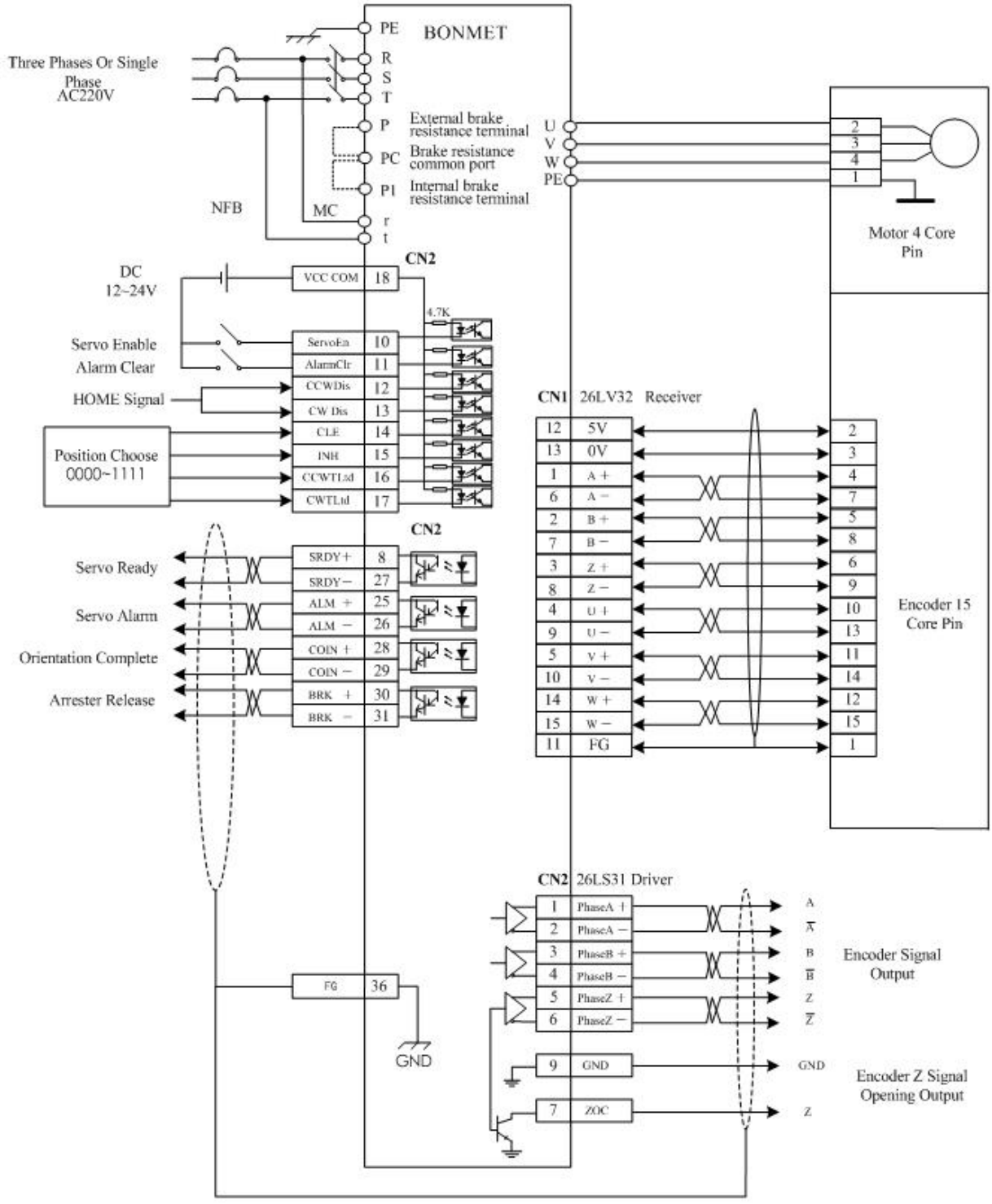
Speed Control Mode



Torque Control Mode



Point-to-point Control Mode



● Power Terminal

Power terminal list:

Model	Terminal
SA3L04C	R、S、T、P、PC、P1、U、V、W、PE。
SA3L06B/SA3L10B/SA3L25C	R、S、T、r、t、P、G、PC、P1、U、V、W、PE。
SA3H10C	R、S、T、r、t、P、PC、P1、U、V、W、PE。

Specifications:

Terminal symbol	Name	Function
R	Main circuit power input single-phase or three-phase	Main circuit power input terminals, the voltage is AC 220V 50Hz （The main circuit power input of SA3H10C is AC 380V/220V 50Hz ）. Note: Do not connect terminal U, V, W with power supply.
S		
T		
r	Control power input single-phase	Input terminals for control circuit.(AC220V 50Hz)
t		
P	External braking resistor terminal	1. Please connect P1 with PC when using the internal brake resistor. 2. Please connect the external brake resistor between P and PC when using it. 3. Terminal G is the proprietary terminal of SA3H10C, when operating on 380V, please connect the high-voltage capacitance between P and G.
G	External capacitor terminal	
PC	Public contact of braking resistor	
P1	Internal braking resistor terminal	
U	Output terminal	Servo drive output terminals, mach with U, V, W terminals of the servo motor.
V		
W		
PE	Grounding	Grounding terminal.

● Encoder Terminal（CN1）

Terminal number	Name	Function		
		Symbol	I/O	Description
12	Power supply(5V)	＋5V		The power supply and public ground of servo motor. Parallel multi-cored wire was made to reduce pressure drop of wires as the cable is longer.
13	Power of public ground	0V		
1	Encoder A+ input	A＋	Type7	Connect with the electro-optic encoder A+.
6	Encoder A- input	A－		Connect with the electro-optic encoder A-.
2	Encoder B+ input	B＋	Type7	Connect with the electro-optic encoder B+.
7	Encoder B- input	B－		Connect with the electro-optic encoder B-.
3	Encoder Z+ input	Z＋	Type7	Connect with the electro-optic encoder Z+.
8	Encoder Z- input	Z－		Connect with the electro-optic encoder Z-.
4	Encoder U+ input	U＋	Type7	Connect with the electro-optic encoder U+.
9	Encoder U- input	U－		Connect with the electro-optic encoder U-.
5	Encoder V+ input	V＋	Type7	Connect with the electro-optic encoder V+.
10	Encoder V- input	V－		Connect with the electro-optic encoder V-.
14	Encoder W+ input	W＋	Type7	Connect with the electro-optic encoder W+.
15	Encoder W- input	W－		Connect with the electro-optic encoder W-.
11	Inhibit ground	FG		Terminal of Inhibit ground

Control Signal I /O Terminals（CN2）

Terminal number	Name	Terminal symbol			Function
		Symbol	I/O	mode	
18	Anode of input terminal	VCCCOM	Type1		The anode of input power is used to drive the photoelectric coupler of input terminal (DC12～24V,current≥100mA).
10	Servo enable	ServoEn	Type1		Servo enable input terminal. ServoEn ON: Operation enable; ServoEn OFF: Operation disable. Note 1: Make sure the servo motor is quiescent before “ServoEn OFF” turns to “ServoEn ON” Note 2: Please wait for at least 50 ms before inputting command in the State of “ServoEn ON”.
11	Alarm clear	AlarmClr	Type1		Alarm clear terminal input. AlarmClr ON: Clear the system alarm; AlarmClr OFF: Maintain the system alarm. Note 1: Do not try to clear the alarm of which alarm code is less than 12, please cut off the power supply and restart the drive.
12	CCW drive forbidden	CCWDis	Type1		CW (anti-clockwise) drive forbidden input terminal. CWDis ON: Motor is not allowed to rotate in the anti-clockwise direction; CWDis OFF: Motor is allowed to rotate in the anti-clockwise direction. Note 1: Used in condition that mechanical over limitation, the torque of CCW direction is zero when switch is off. Note 2: Inhibit this function by setting parameter PN8=000100, CW is permitted without connecting the terminals.
13	CW drive forbidden	CWDis	Type1		CW (clockwise) drive forbidden input terminal. CWDis ON: motor is not allowed to rotate in the clockwise direction; CWDis OFF: motor is allowed to rotate in the clockwise direction. Note 1: Used in condition that mechanical over limitation, the torque of CCW direction is zero when switch is off. Note 2: Inhibit this function by setting parameter PN8=000100, CW is permitted without connecting the terminals.
14	Offset counter clear	CLE	Type1	P	In position mode (PN4=2), input terminal of position deviation counter clear. CLE ON: Clear deviation counter in position control mode.
	Speed choose1	SC1	Type1	S	Select speed control mode, set PN40 to 0 when selecting the inner speed, you can choose different inner speed by setting the value of SC1 and SC2. SC1 OFF, SC2 OFF: Inner speed choose1; SC1 ON, SC2 OFF: Inner speed choose2; SC1 OFF, SC2 ON: Inner speed choose3; SC1 ON, SC2 ON: Inner speed choose4. Note: inner speed 1-4 can be modified through the parameters.

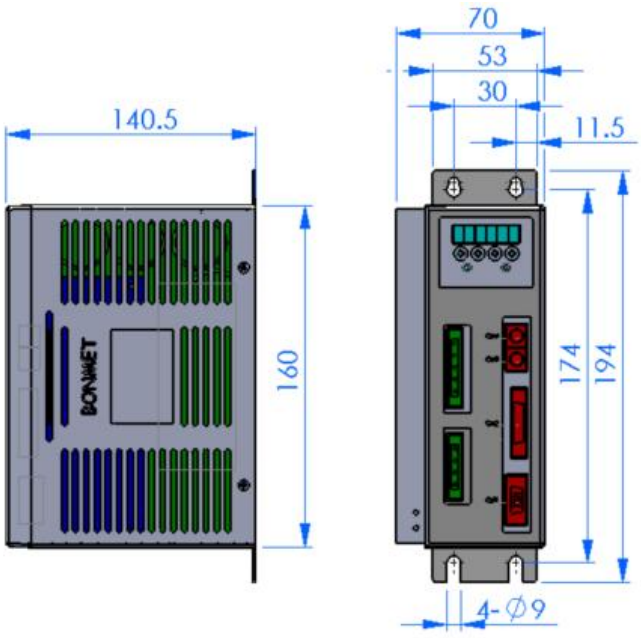
	Zero clamp	ZEROSPD	Type1	S	In speed control mode (PN4=1), when choosing outer stimulant speed (PN9=1000): ZEROSPD ON: No matter what the simulative value is, the value of speed dictate is forced to be zero; ZEROSPD OFF: speed command equals to a simulative value.
15	Command pulse forbidden	INH	Type1	P	Input terminal of command pulse. INH ON: Command pulse input forbidden; INH OFF: Command pulse input efficient.
	Speed choose 2	SC2	Type1	S	Select speed control mode, set PN40 to 0 when selecting the inner speed, you can choose different inner speed by setting the value of SC1 and SC2. SC1 OFF, SC2 OFF: Inner speed choose1; SC1 ON, SC2 OFF: Inner speed choose2; SC1 OFF, SC2 ON: Inner speed choose3; SC1 ON, SC2 ON: Inner speed choose4.
16	CCW torque limit	CCWTLtd	Type1		CCW (anti-clockwise) torque limit input terminal. CCWTLtd ON:CCW external torque is limited in Scope of PN28; CCWTLtd OFF: CCW torque is not limited by parameter PN28. [Note]: Whether CCWTLtd is valid or not, CCW torque is limited by parameter PN42, commonly, the value of PN42 is bigger than that of PN28.
17	CW torque limit	CWTLtd	Type1		CW (clockwise) torque limit input terminal. CWTLtd ON:CW torque limit in scope of PN27; CWTLtd OFF:CW torque limit not limited by parameter PN27; [Note]: Whether CCWTLtd is valid or not, CCW torque is limited by parameter PN42, commonly, the value of PN42 is bigger than that of PN27.
8	Servo output ready	SRDY＋	Type2		SRDY ON: Servo ready output is ON when control power supply and main power supply is in the ordinary condition, and there is no alarm. SRDY OFF: Servo ready output is OFF when main power supply is detached or there is any alarm,.
27		SRDY－	Type2		
25	Servo alarm output	ALM＋	Type2		Output terminal of servo alarm. ALM ON: Servo alarm output ON as there is no alarm; ALM OFF: Servo alarm output OFF as there is any alarm.
26		ALM－			
28	Position complete output (position control); speed reach output (speed control)	COIN＋	Type2	P S	Output terminal of positioning complete. COIN ON: Positioning complete output is ON while the value of position deviation counter is in enactment positioning range , otherwise, output is OFF (output close); Output terminal of reaching speed. COIN ON: When the speed is equal or over hypothesis speed, speed reach output is ON, otherwise, output is OFF (output close).
29		COIN－		P S	

30	Mechanical brake release	BRK＋	Type2		This terminal can be used to control the brake when the motor equipped with mechanical brakes. BRK ON: Electrify the brake, then the brake is not valid, and the motor could run; BRK OFF: Cut off the power supply of the brake, then the break is valid, and the motor could not work. Note: BRK function is controlled by drive.
31		BRK－			
32	Command pulse PLUS input	PulseInv＋	Type3	P	Input terminal of external command pulse. Note 1: pulse input mode is set by parameter PN52. ①PN52=0, command pulse+ signal mode(default state); ②PN52=1, CCW/CW command pulse mode; ③PN52=2, double-phase command pulse mode.
33		PulseInv－			
34	Command pulse SIGN input	SignInv＋	Type3	P	
35		SignInv－			
22	Analog speed command input	ASPEED＋	Type4	S	Input terminal of external simulative speed command (differential mode), the impedance is 10kΩ, the voltage is -10V~+10V.
21		ASPEED－			
23	Analog ground	AGND			The ground line of analog input.
20	Analog torque command input	ATORQUE＋	Type4	T	Input terminal of external simulative speed command (differential mode), the impedance is 10kΩ, the voltage is -10V~+10V.
19		ATORQUE－			
24	Analog ground	AGND			The grounding line of analog input.
1	Encoder Phase-A signal	Phase A＋	Type5		1. Encoder signal A, B, Z for difference drive output (26LS31 output, corresponding to RS422); 2. Non-isolative output (non-insulation).
2		Phase A－			
3	Encoder Phase-B signal	Phase B＋	Type5		
4		Phase B－			
5	Encoder phase-Z signal	Phase Z＋	Type5		
6		Phase Z－			
7	Encoder phase-Z collector opening output	ZOC	Type6		1. Z-Phase signal is output through open collector, output is ON, otherwise, output is OFF; 2. Non-isolative output (non-insulation); 3. Please use a high speed electro-optical coupler to receive the signal.
9	Encoder public ground	GND			Encoder public ground wire.
36	inhibit ground	FG			Terminal of inhibit ground wire.

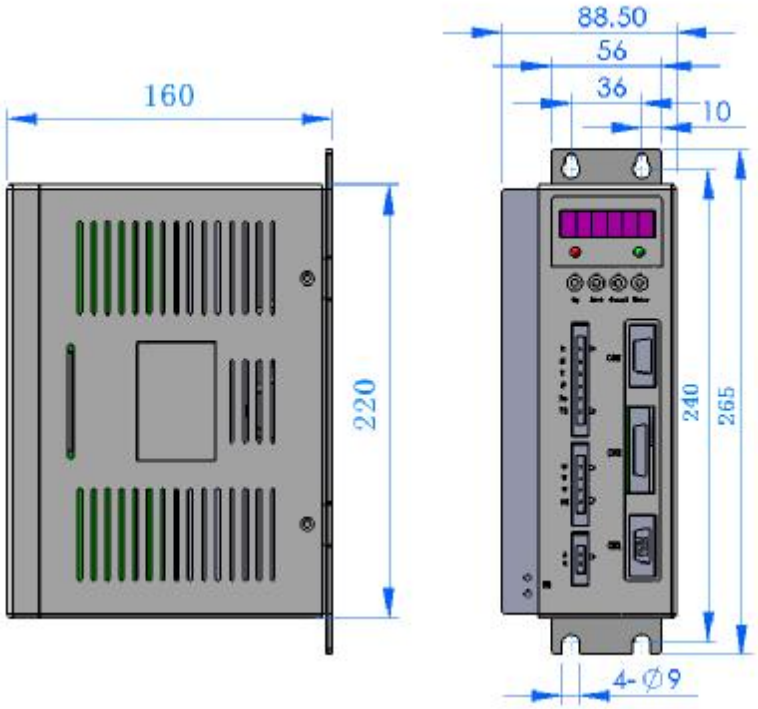
● Communication Ports（COM/CN3）

Terminal number	Name	Function		
		Symbol	I/O	Description
2	Receive data	RXD		Receive data.
3	Transmit data	TXD		Transmit data.
5	Signal earth	GND		Inhibit signal earth.

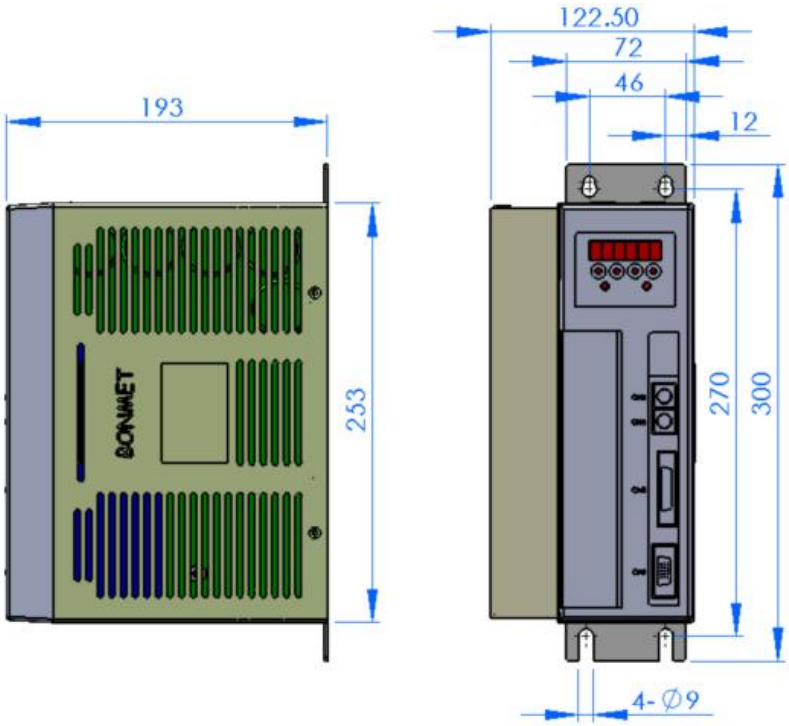
- SA Series Servo Drive



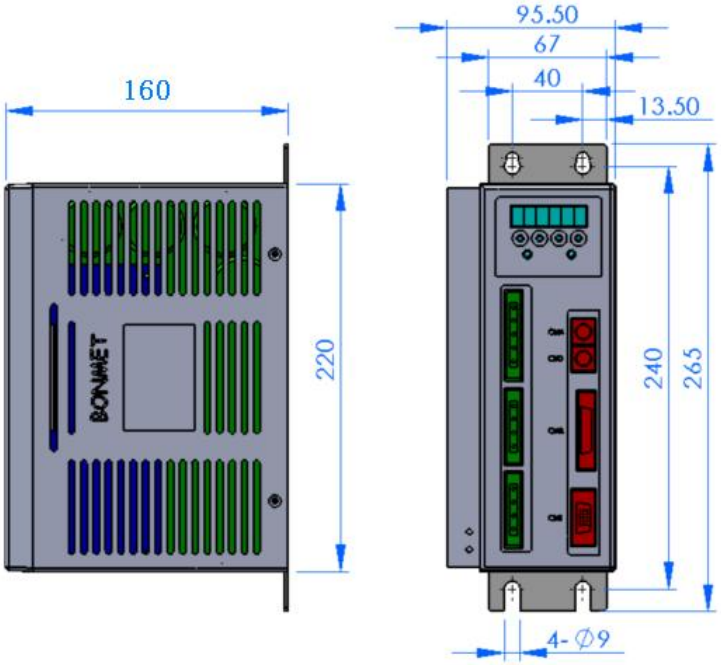
Dimension drawings of SA3L04C



Dimension drawings of SA3L06B / SA3L10B



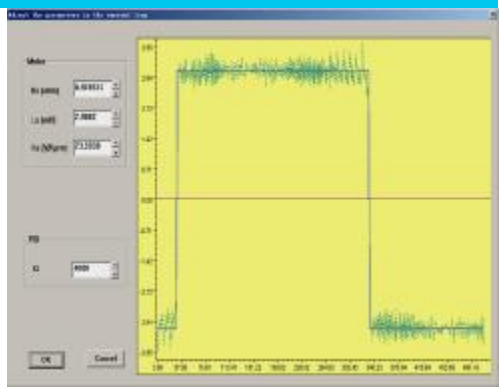
Dimension drawings of SA3L15C / SA3L25C



Dimension drawings of SA3L10C / SA3H10C

Control Software—Servofly

Main features:



- Parameter management

  You can edit, transmit, compare and initialize for parameters.

- Monitoring

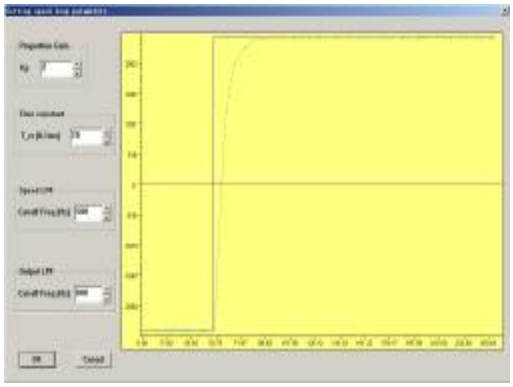
  Real-time monitor to all I/O signal, current alarm, history records and system status, etc.

- Real-time sampling

  Visual representation of current, speed and torque for adjustment and analysis.

- Adjusting

  Quickly adjust the servo drives gain and take a simple test without inputting position or speed commands.



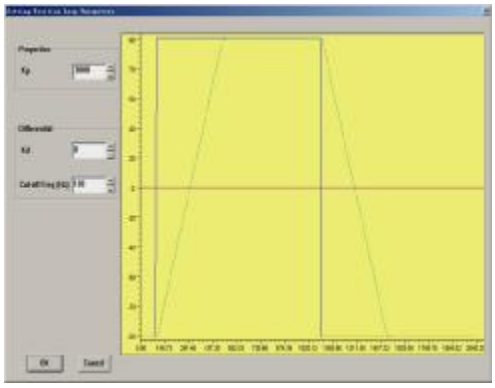
Users can select all the parameters quickly and easily, detailed classification of the parameter settings will help users to get a maximize performance.

Through advanced PID control system, users can quickly adjust the loop parameters to achieve the ideal state.

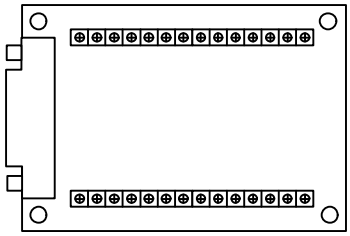
Servofly can also auto tune the driver to the servo motor, and sets parameters automatically.

Servofly is advanced software to help customers tune, and program our range of servo drivers to suit a wide variety of applications.

We will constantly improve the software and add more features, and make the software even more user friendly. Users can download the latest version from our official website.



BONMET Servo System Options

Type	Cable model	Adapter model	Cable icon
Encoder cable	BON-SA24	110 series 130 series 150 series	
	BON-SB24	80 series	
Power cable	BON-HA	110 series 130 series 150 series	
	BON-HB	80 series	
RS232 serial cable	BON-COM9	SA3L06B SA3L10B	
	BON-PS2-8	SA3L04C SA3L10C SA3L15C SA3L25C SA3H10C	
Cable for PC interface	BON-CN2A	SA3L06B SA3L10B SA3L04C SA3L10C SA3L15C SA3L25C SA3H10C	
Expand board for PC interface	EXD-CN2A	SA3L06B SA3L10B SA3L04C SA3L10C SA3L15C SA3L25C SA3H10C	

BONMET(Huanggang) Machinery Company is a foreign joint venture company founded by Germany Company Bonmet Motion GmbH and HKS. Our company mainly provides servo drive system and control machinery products.

High quality, reliable products and perfect service system make our products widely popular all over the world, oversea market including Europe, Asia, America, Africa and Middle East and so on.

Our products have been widely used in: aviation, space industry, vessel, communication, CNC machine tool, cutting and welding equipment, printing and dyeing textile machine, packing machine, printing machine, plastic machine, electronic equipment, engineering machine, metallurgy machine, petroleum machine, shipping machine, construction machine, mechanical arm, robot, medical equipment and other fields.

We take customer's requirement as our center philosophy, and continuously improve our supply reliability to produce the most functional and economical power transmission solution for customers. To translate science and technology into productivity, and create profit for society and enterprise, are the main objectives of us.

When you need to select a perfect motion and drive plan for your system, please choose us; If you can not find your design idea in this catalogue or for any question, please do not hesitate to contact with our sales team or engineer department, we look forward to your inquiries!

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