

# SANMOTION

## AC SERVO SYSTEMS

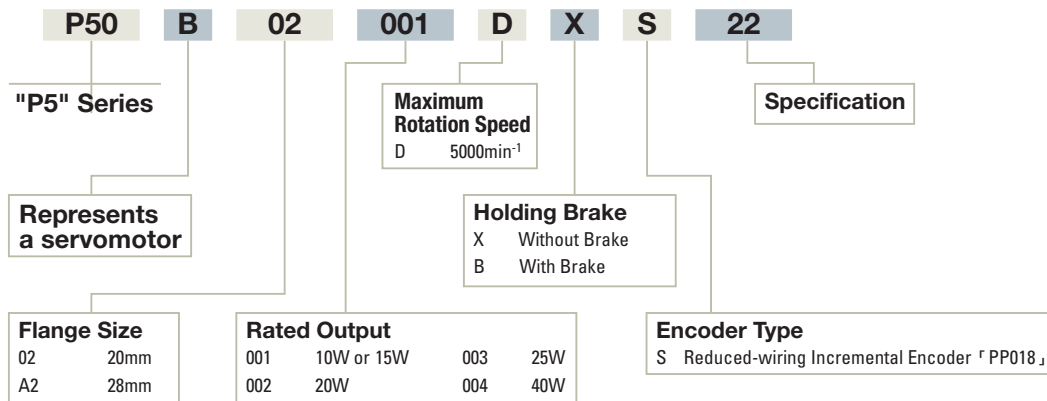
10W to 40W



### Servo Motor Model Number Nomenclature

#### Servo Motor

Example: The part number shown below is "P5" servomotor with 20mm flange size, 10W rated output, 5000min<sup>-1</sup> maximum rotation speed and a wiring-saving incremental encoder (2000P/R,2048P/R).

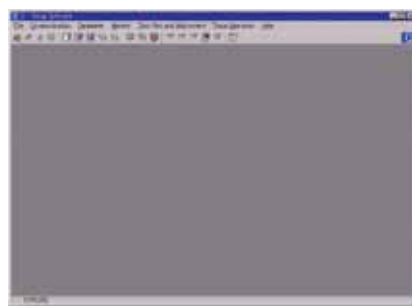


### Setup Software

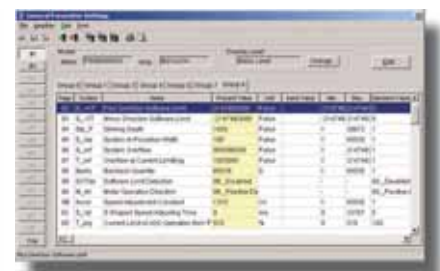
(1) Setup Software Start-up Screen



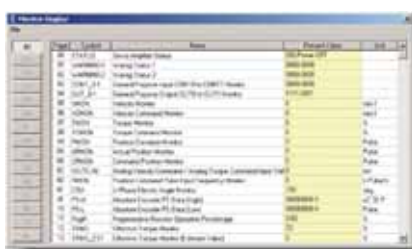
(2) Main Screen



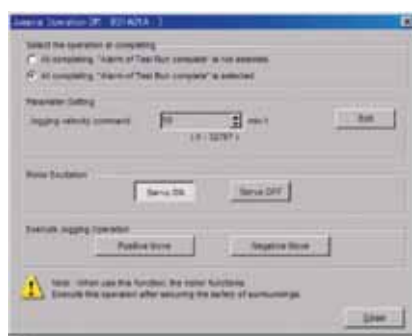
(3) Parameter Configuration Screen



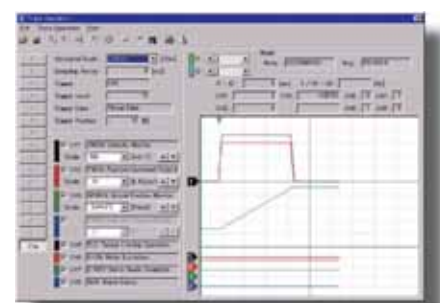
(4) Monitor Functions



(5) Test Run and Adjustment Function



(6) Operation Trace Function



# Standard Specifications



# P5

Compact Servo Motor

AC200V System

Capacity

20mm to 28mm  
10W to 40W

( 6 models )

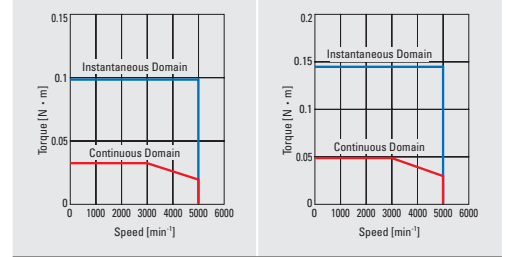
Features

High Rigidity  
Faster Servos

:Indicates a typical value after warm-up and thermal stabilization, together with a standard amplifier.

:Indicates a typical value when the winding temperature is 20 .

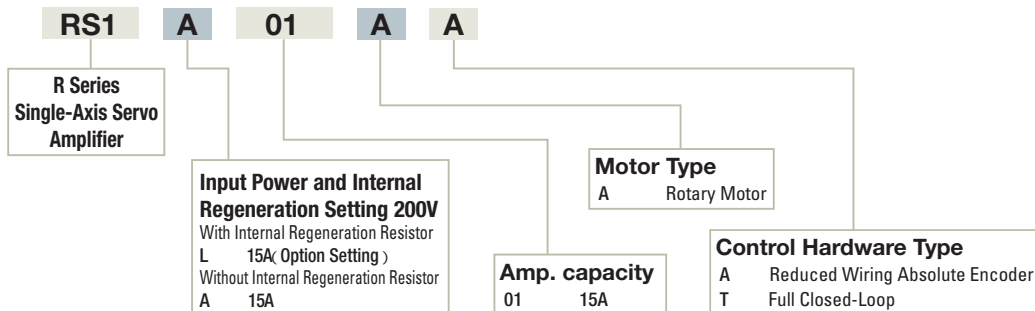
Motor Model and Flange Dimension in mm				P50B02001DXS22 (20)	P50B02001DXS72 (20)
	Status	Symbol	Unit		
Rated Output		$P_R$	W	10	15
Rated Rotation Speed		$N_R$	min <sup>-1</sup>	3000	
Max. Rotation Speed		$N_{max}$	min <sup>-1</sup>	5000	
Rated Torque		$T_R$	N·m	0.032	0.048
Continuous Stall Torque		$T_S$	N·m	0.032	0.048
Inst. Max. Stall Torque		$T_P$	N·m	0.098	0.144
Rated Armature Current		$I_R$	Arms	0.65	0.86
Continuous Stall Armature Current		$I_S$	Arms	0.63	0.84
Instant. Max. Stall Armature Current		$I_P$	Arms	1.9	2.8
Torque Constant		$K_T$	N·m / Arms	0.0554	0.0625
Voltage Constant Per-Phase		$K_E$	mV / min <sup>-1</sup>	1.93	2.18
Phase Armature Resistance		R		6.8	5.3
Phase Inductance		L	mH	1.5	1.1
Rated Power Rate		$Q_R$	kW / s	6.3	9.6
Electrical Time Constant		$t_e$	ms	0.22	0.21
Mechanical Time Constant ( not including Encoder )		$t_m$	ms	1.11	0.98
Rotor Moment of Inertia ( not including Encoder )		$J_M$	$\times 10^{-4}$ kg·m <sup>2</sup> ( GD <sup>2</sup> / 4 )	0.0017	0.0024
Encoder			P / R	Incremental	2000P/R 2048P/R
Mass including Encoder		$W_E$	kg	0.105	0.125
Encoder inertia		$J_s$	$\times 10^{-4}$ kg·m <sup>2</sup> ( GD <sup>2</sup> / 4 )	0.00013	
Motor Operating Temp, Rel. Humidity				Operating Temperature: 0 to 40 °C, Relative Humidity: 90% maximum, no condensation	



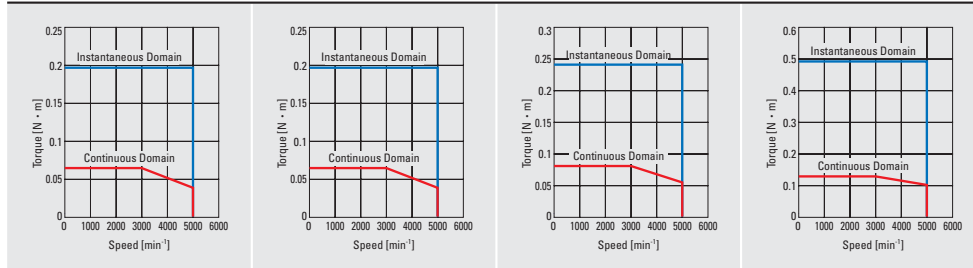
# Servo Amplifier Model Number Nomenclature

## Single-Axis Servo Amplifier

Example: The model number shown below is "R" Series Servo Amplifier with AC200V input voltage and 15A amplifier capacity.



P50B0200DXS22 《20》	P50BA2002DXS22 《28》	P50BA2003DXS22 《28》	P50BA2004DXS22 《28》	Symbol	Unit
20	20	25	40	$P_R$	W
3000				$N_R$	$\text{min}^{-1}$
5000				$N_{\text{max}}$	$\text{min}^{-1}$
0.064	0.064	0.080	0.127	$T_R$	$\text{N}\cdot\text{m}$
0.064	0.064	0.080	0.127	$T_S$	$\text{N}\cdot\text{m}$
0.196	0.196	0.24	0.49	$T_P$	$\text{N}\cdot\text{m}$
0.79	0.88	0.85	0.58	$I_R$	Arms
0.76	0.86	0.83	0.57	$I_S$	Arms
2.58	2.9	2.8	2.4	$I_P$	Arms
0.090	0.081	0.105	0.238	$K_T$	$\text{N}\cdot\text{m} / \text{Arms}$
3.14	2.82	3.65	8.31	$K_E$	$\text{mV} / \text{min}^{-1}$
6.6	5.0	5.8	13.4	R	
1.5	2.3	2.7	7.4	L	mH
12.9	3.4	4.6	8.6	$Q_R$	$\text{kW} / \text{s}$
0.23	0.46	0.47	0.55	te	ms
0.77	2.7	2.2	1.34	tm	ms
0.0031	0.012	0.014	0.019	$J_M$	$\times 10^{-4} \text{kg}\cdot\text{m}^2 (\text{GD}^2 / 4)$
Incremental 2000P/R 2048P/R					P / R
0.145	0.275	0.325	0.375	$W_E$	kg
0.00013				$J_S$	$\times 10^{-4} \text{kg}\cdot\text{m}^2 (\text{GD}^2 / 4)$
Operating Temperature: 0 to 40 °C, Relative Humidity: 90% maximum, no condensation					

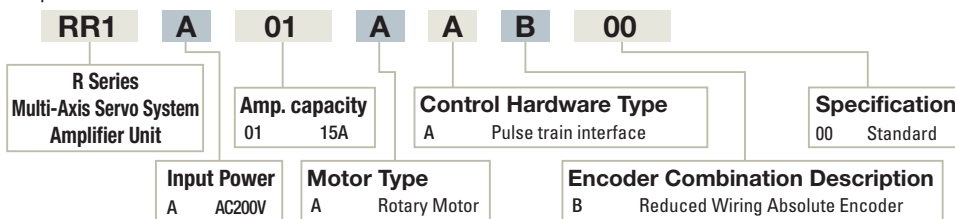


## Multi-Axis Servo Amplifier

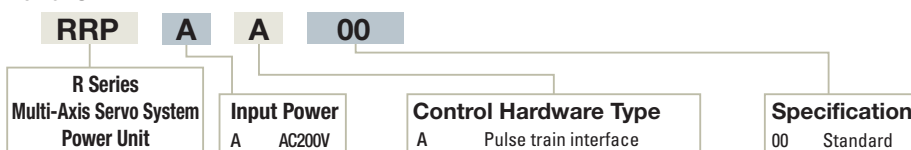
Example: The model number shown right is a 4-axis "R" series multiaxis servo amplifier configuration with AC200V input voltage, 2 units of 15A amplifiers, and pulse train interface.

Amplifier Unit RR1A01AAB00 × 2 units      Power Unit RRPAA00 × 1 units      Motherboard RRMA600 × 1 units

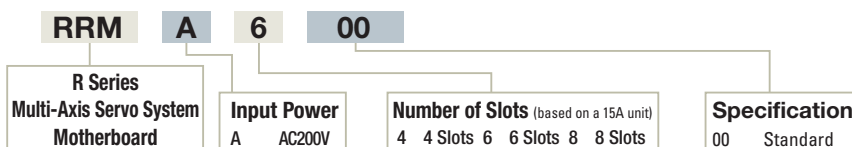
Amplifier Unit



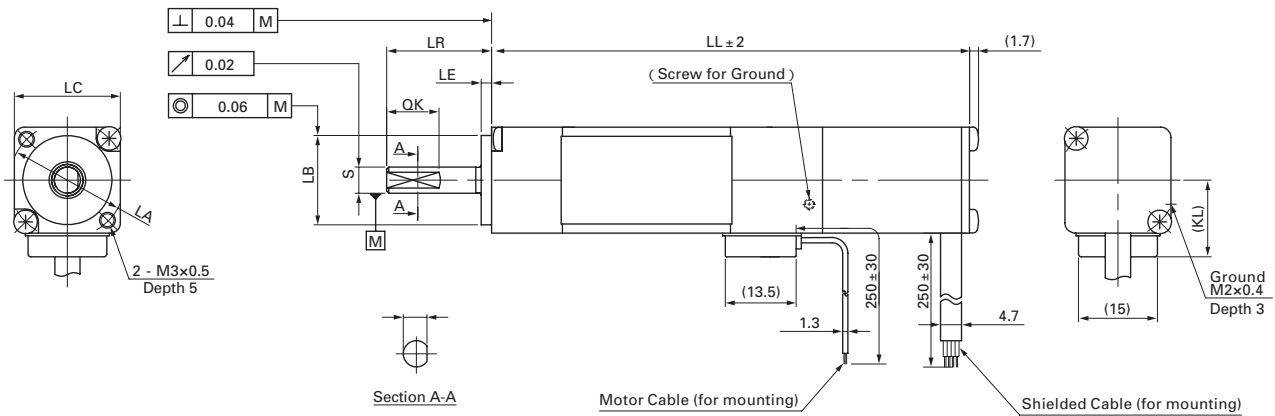
Power Unit



Motherboard

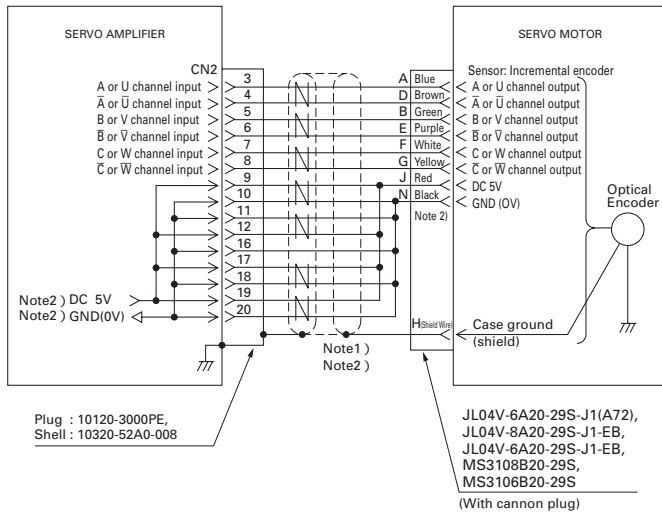


# Servo Motor Dimensions (Unit : mm)



MODEL	LL	KL	LA	LB	LE	LC	LR	S	T	QK
P50B02001DXS22	76	15	22	0	2	20	20	0	4.5	10
P50B02001DXS72	84			17-0.018				5-0.008		
P50B02002DXS22	92			0				0		
P50BA2002DXS22	89	19	32	0	2	28	20	0	5.5	10
P50BA2003DXS22	95.5			24-0.021				6-0.008		
P50BA2004DXS22	114			0				0		

# Encoder Wiring Diagram



## Reduced-wiring Incremental Encoder [PP018] (Cannon plug and lead-wire types)

Note1 Use a twisted-pair shielded cable.

Note2 Sensor power connections depend on sensor cable length. See the following table:

Sensor cable length	5m MAX	10m MAX	20m MAX	30m MAX
+5V DC Wiring	Connect pin 19 (Do not connect pins 9,12,17)	Connect pins 17, 19 (Do not connect pins 9,12)	Connect pins 12, 17, 19 (Do not connect pin 9)	Connect pins 9, 12, 17, 19
0V DC Wiring	Connect pin 20 (Do not connect pins 10,11,16,18)	Connect pins 18, 20 (Do not connect pins 10,11,16)	Connect pins 11,18, 20 (Do not connect pins 10, 16)	Connect pins 10, 11, 16, 18, 20