

HITACHI AC Servo Drive

**HITACHI**  
Inspire the Next

# AD Series

AD Series AC Servo Drive realizes the highest performance of your machines with Hitachi's Advanced Drive technology



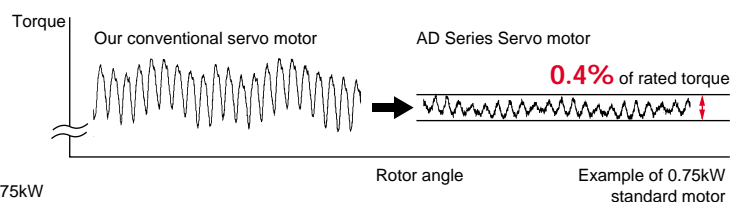
# Hitachi AD Series AC Servo Drive Meets Various Requirements from Demanding Applications with Its Full Features Realised by Hitachi's Advanced Motor Technology

## REALISATION OF LESS-VIBRATION, HIGH-RESPONSE, AND HIGH-PRECISION OPERATION

### Drastically Reduced Motor Cogging Torque

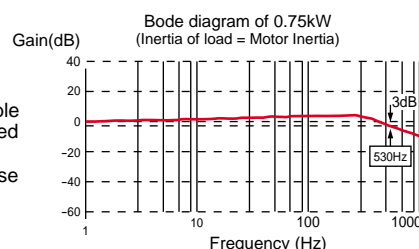
With Hitachi's Advanced Motor technology (patented), motor cogging torque has been reduced by approximately 65% (comparison with our previous model.)

The AD Series Servo Drive is suitable for such applications as high-precision process machine or smart conveyer system where vibration should be avoided.



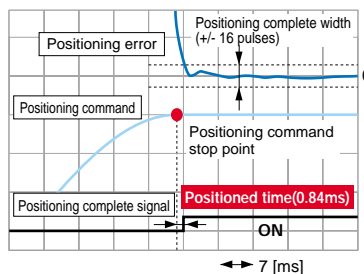
### High Response and High precision

High-precision positioning and stable rotation at low speed can be realised with 32-bit system LSI with DSP, which assures speed response frequency of 500Hz, and high-resolution 17-bits serial encoder.



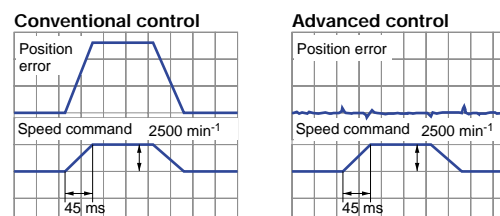
### ADA2 & ADA3 Amplifier for higher performance

Positioning time of 0.84 ms has been achieved by Hitachi's Advanced Drive Technology. Tact-time can be drastically reduced for high hit-rate positioning applications.



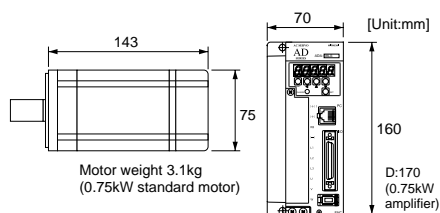
### ADA2 & ADA3 Amplifier for higher performance

High-precision control can be realised with "Minimum Position Error Control", which can reduce position error drastically



## COMPACT DESIGN, BUT LESS NOISY

The AD Series compact design, which is realised based on electromagnetic field analysis, helps downsizing customer's machine contributing flexible design of total system. Motor noise has been reduced by 6 dB on average (comparison with our previous model).



## USER FRIENDLINESS

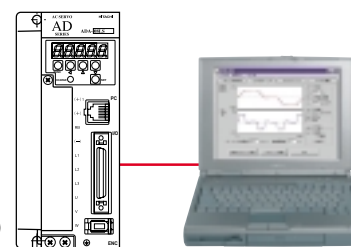
### Built-in Programmable Sequence Function(ADAX type)

Servo amplifier with programmable sequence function is available(ADAX type). Single-axis positioning operation, I/O terminal control, etc are possible by programming language similar to BASIC.

Label	Success	Param	Param	Param	Param
Label	seq	ST11	=	LD11	
	seq				
	select	seq			
	cmd	Q			
	mem	PR00	MR00	ACCEL	DECEL
	mem	PR11	MR11	ACCEL	DECEL

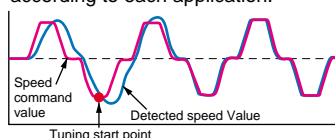
### Configuration and Monitoring through a Personal Computer

By using configuration software AHF, which runs on Windows® operating system, parameters can be set through a personal computer, and position, speed, torque, etc of the AC servo drive can be monitored on the PC display. (Windows® is a registered trademark of Microsoft Corp. in the U.S. and other countries.)



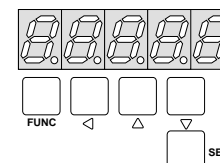
### Auto-tuning Function

Control gains can be automatically tuned to the optimum values according to each application.



### 7-segment 5-digit LED Display and Easy-to-use Built-in Operator

Parameters can be set with built-in operator. parameter setting and monitoring in the field can be easily done.

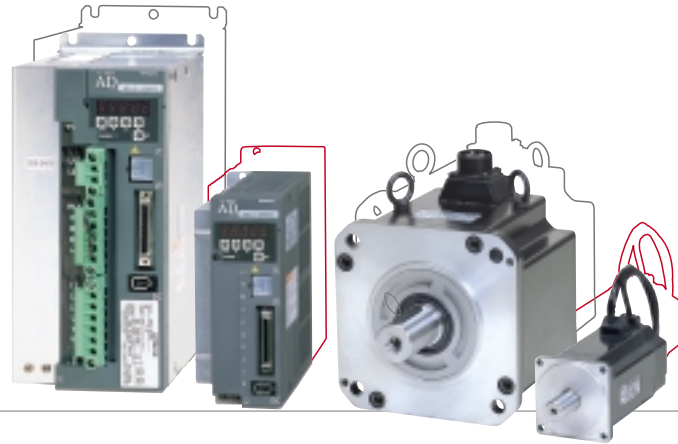


ISO 14001 EC97J1095



Hitachi AC servo drives in this brochure are produced at the factory registered under the ISO14001 Standard for environment management system.

# Various Requirements Full Feature Performance Technology.



## GLOBAL PERFORMANCE

### Network Compatibility

The AD Series Servo Drive can communicate with DeviceNet™, Ethernet™, and SERCOS.

### Conformity to Global Standard

CE, UL, and c-UL approvals.



DeviceNet™  
Compatible  
AD Servo Drive



Hitachi Programmable Controller EH-150



Distributed I/O



3rd party made  
DeviceNet™  
compatible equipment.





DeviceNet™  
Compatible  
Hitachi Inverter  
L100DN, SJ100DN

**DeviceNet™**

DeviceNet is a trademark of Open DeviceNet Vendor Association.

## AD Series line up

● For amplifier with Programmable Sequence Function, Type code is ADAX- and ADAX3-

Series	Servo Motor			Servo Amplifier	
	Explanation	Output	Type Code	Type Code	Explanation
ADMA 3000min <sup>-1</sup> 	Low Inertia Type 1 φ100V 17bit/rev Encoder Incremental type/Absolute type	50W	ADMA - R5MA/F	ADA/ADA2 - R5MS	1φ100V Serial data transmission from Encoder
		100W	ADMA - 01MA/F	ADA/ADA2 - 01MS	
		200W	ADMA - 02MA/F	ADA/ADA2 - 02MS	
		400W	ADMA - 04MA/F	ADA/ADA2 - 04MS	
	Low Inertia Type 3 φ200V 17bit/rev Encoder Incremental type/Absolute type	50W	ADMA - R5LA/F	ADA/ADA2 - R5LS	3φ 200V Serial data transmission from Encoder
		100W	ADMA - 01LA/F	ADA/ADA2 - 01LS	
		200W	ADMA - 02LA/F	ADA/ADA2 - 02LS	
		400W	ADMA - 04LA/F	ADA/ADA2 - 04LS	
		750W	ADMA - 08LA/F	ADA/ADA2 - 08LS	
		1kW	ADMA - 10LA/F	ADA/ADA2 - 10LS	
		1.5kW	ADMA - 15LA/F	ADA/ADA2 - 15LS	
		2kW	ADMA - 20LA/F	ADA/ADA2 - 20LS	
Low Inertia Type 1φ230V/3φ200V 17bit/rev Encoder Incremental type/Absolute type	100W	ADMA - 01SA/F	ADA3 - 01NSE	1φ 230V/3φ200V Serial data transmission from Encoder Source type Output	
	200W	ADMA - 02SA/F	ADA3 - 02NSE		
	400W	ADMA - 04SA/F	ADA3 - 04NSE		
	750W	ADMA - 08SA/F	ADA3 - 08NSE		
ADMB 3000min <sup>-1</sup> 	Pancake Type 1 φ100V 17bit/rev Encoder Incremental type/Absolute type	100W	ADMB - 01MA/F	ADA/ADA2 - 01MS	1φ100V Serial data transmission from Encoder
		200W	ADMB - 02MA/F	ADA/ADA2 - 02MS	
		400W	ADMB - 04MA/F	ADA/ADA2 - 04MS	
	Pancake Type 3 φ200V 17bit/rev Encoder Incremental type/Absolute type	100W	ADMB - 01LA/F	ADA/ADA2 - 01LS	3φ 200V Serial data transmission from Encoder
		200W	ADMB - 02LA/F	ADA/ADA2 - 02LS	
		400W	ADMB - 04LA/F	ADA/ADA2 - 04LS	
ADMC 1500min <sup>-1</sup> 	Middle Inertia Type 3φ 200V 17bit/rev Encoder Incremental type/Absolute type	750W	ADMC - 08LA/F	ADA/ADA2 - 08LS	3φ 200V Serial data transmission from Encoder
		1kW	ADMC - 10LA/F	ADA/ADA2 - 10LS	
		1.5kW	ADMC - 15LA/F	ADA/ADA2 - 15LS	
		2kW	ADMC - 20LA/F	ADA/ADA2 - 20LS	
		2.9kW	ADMC - 30LA/F	ADA/ADA2 - 30LS	
		4.5kW	ADMC - 45LA/F	ADA/ADA2 - 50LS	
ADMG 2000min <sup>-1</sup> 	Middle Inertia Type 3φ400V 8192p/rev Incremental Encoder Type (with reduced wiring)	0.5kW	ADMG - 05HP	ADA3 - 15HPE	3φ400V, Serial data transmission from Encoder Source type Output
		1kW	ADMG - 10HP	ADA3 - 15HPE	
		1.5kW	ADMG - 15HP	ADA3 - 15HPE	
		2kW	ADMG - 20HP	ADA3 - 35HPE	
		3.5kW	ADMG - 35HP	ADA3 - 35HPE	
		4.5kW	ADMG - 45HP	ADA3 - 70HPE	
		5.5kW	ADMG - 55HP	ADA3 - 70HPE	
7kW	ADMG - 70HP	ADA3 - 70HPE			

# Specifications of Servo Motors

## Basic Specifications

Time Rating	Continuous	Protection	IP55(excluding connector and the part passed through by the shaft)
Ambient Temperature	0 to +40°C	Durability of vibration	24.5m/s <sup>2</sup> (2.5G),XYZ direction each for 2Hr, from 10Hz to 120Hz
Ambient Humidity	20 to 90%RH(without dewing)		
Mounting	Flange mounting		

### 1.Low inertia type and Pancake Type (single phase 230V and 100V) : ADMA and ADMB

items	unit	specification												
Input voltage		single phase 230V/three phase 200V						single phase 100V						
Type code		ADMA-						ADMB-						
Type code of relevant Servo Amp.		ADA3-, ADAX3-						ADA-, ADA2-, ADAX-						
Rated output	W	—	01S	02S	04S	08S	R5M	01M	02M	04M	—	01M	02M	04M
Rated torque	N.m	—	0.32	0.64	1.27	2.39	0.16	0.32	0.64	1.27	—	0.32	0.64	1.27
Instantaneous peak torque	N.m	—	0.96	1.91	3.82	7.16	0.48	0.96	1.91	3.82	—	0.96	1.91	3.82
Rated speed	min <sup>-1</sup>	3000												
Max speed	min <sup>-1</sup>	4500												
Jm Moment of Inertia	kg.m <sup>2</sup> x10 <sup>-4</sup>	—	0.023	0.12	0.22	0.62	0.014	0.023	0.12	0.22	—	0.11	0.19	0.32
Load Inertia		up to 30 times Motor Inertia						up to 20 times Motor Inertia						
Rated Power Rate	kW/sec	—	45	34	73	92	18	45	34	73	—	9.19	21.6	50.4
Speed Positioning Detector		17 bits/rev Incremental encoder (serial data transmission), 17 bits/rev absolute encoder (serial data transmission)												

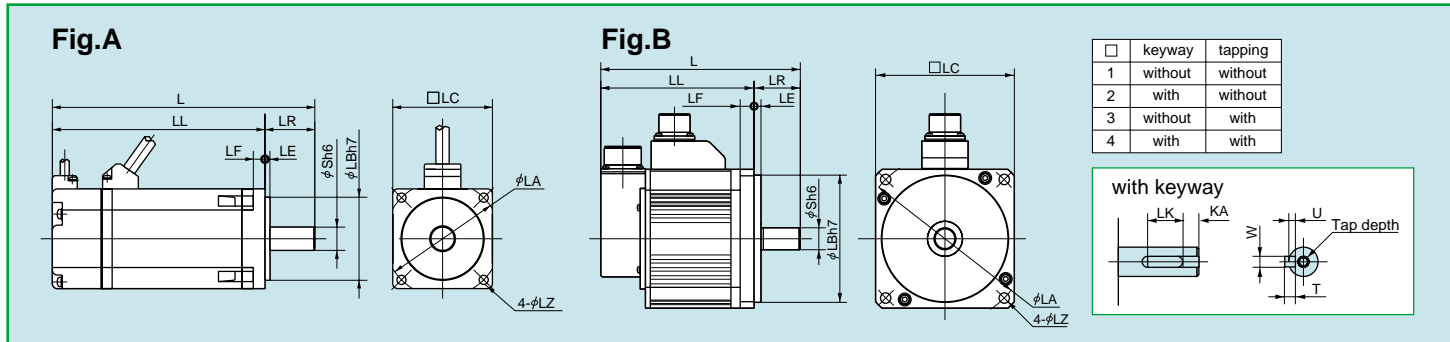
### 2.Low inertia type and Pancake Type (3 phase 200V) : ADMA and ADMB

Input voltage	three phase 200V															
Type code	ADMA-										ADMB-					
Type code of relevant Servo Amp.	ADA-, ADA2-, ADAX-															
Rated output	W	50	100	200	400	750	1000	1500	2000	3000	5000	100	200	400	750	1000
Rated torque	N.m	0.16	0.32	0.64	1.27	2.39	3.18	4.77	6.37	9.55	15.9	0.32	0.64	1.27	2.39	3.18
Instantaneous peak torque	N.m	0.48	0.96	1.91	3.82	7.16	9.55	14.3	19.1	28.6	47.7	0.96	1.91	3.82	7.16	9.55
Rated speed	min <sup>-1</sup>	3000														
Max speed	min <sup>-1</sup>	5000														
Jm Moment of Inertia	kg.m <sup>2</sup> x10 <sup>-4</sup>	0.014	0.023	0.12	0.22	0.62	1.24	1.71	2.05	5.36	8.52	0.11	0.19	0.32	1.78	2.26
Load Inertia		up to 30 times Motor Inertia					up to 5 times Motor Inertia					up to 20 times Motor Inertia			up to 5 times Motor Inertia	
Rated Power Rate	kW/sec	18.1	44.0	33.8	73.3	92.1	81.6	133	198	170	297	9.19	21.6	50.4	32.1	45.3
Speed Positioning Detector		17 bits/rev Incremental encoder (serial data transmission), 17 bits/rev absolute encoder (serial data transmission)														

### 3.Middle inertia type (3 phase 200V and 3 phase 400V) : ADMC and ADMG

Input voltage	three phase 200V								three phase 400V								
Type code	ADMC-								ADMG-								
Type code of relevant Servo Amp.	ADA-, ADA2-, ADAX-								ADA3-, ADAX3-								
Rated output	W	0.4	0.75	1.0	1.5	2.0	2.9	4.5	0.5	1.0	1.5	2.0	3.5	4.5	5.5	7.0	
Rated torque	N.m	2.55	4.77	6.37	9.55	12.7	18.5	28.6	2.4	5	7.5	9.55	16.7	21.5	26.3	33.4	
Instantaneous peak torque	N.m	7.64	14.3	19.1	28.6	38.2	50.0	85.9	9	18.5	20	30	45.5	70	72	86	
Rated speed	min <sup>-1</sup>	1500								2000							
Max speed	min <sup>-1</sup>	2000								3000							
Jm Moment of Inertia	kg.m <sup>2</sup> x10 <sup>-4</sup>	1.24	1.71	2.05	5.36	7.68	66.3	97.6	2.1	5.4	8.8	12.5	37.9	46.5	95.3	163	
Load Inertia		up to 20 times Motor Inertia				up to 5 times Motor Inertia				up to 5 times Motor Inertia							
Rated Power Rate	kW/sec	52.4	133	198	170	210	51.4	83.8	27	46	67	73	74	99	73	68	
Speed Positioning Detector		17 bits/rev Incremental encoder (serial data transmission) 17 bits/rev absolute encoder (serial data transmission)								Incremental encoder( 8192ppr )							

# Dimensions: Servo Motor



△=L, M, or S/□=any number from 1 to 4/for Motors with Brakes, last letter is 3(DC24V)/4(DC90V)

Model	output	L	LL	LR	LE	LF	LC	LA	LZ	S	LB	T	U	W	LK	Tapping size	KA	Fig.	weight
ADMA-R5△A1□1	50W	104	78.5	25	2.5	6	40	46	4.5	8	30	3	1.8	3	14	M2.5 × 5	0	A	0.4
ADMA-R5△A1□3/4		139	114																0.65
ADMA-01△A1□1	100W	122	96.5	30	3	7	60	70	5.5	14	50	5	3	5	20	M5 × 8	0	A	0.55
ADMA-01△A1□3/4		157	132																0.8
ADMA-02△A1□1	200W	130	100	40	3	8	75	90	6.6	19	70	6	3.5	6	22	M5 × 8	0	A	1.1
ADMA-02△A1□3/4		168	138																1.7
ADMA-04△A1□1	400W	158	128	45	3	10	90	100	7	24	80	7	4	8	32	M8 × 16	0	B	1.6
ADMA-04△A1□3/4		196	166																2.2
ADMA-08△A1□1	750W	183	143	63	6	12	120	145	9	28	110	7	4	8	50	M8 × 16	0	B	3.1
ADMA-08△A1□3/4		220	180																3.9
ADMA-10LA1□1	1kW	202	157	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	4
ADMA-10LA1□3/4		242	197																5.2
ADMA-15LA1□1	1.5kW	232	187	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	5.2
ADMA-15LA1□3/4		278	233																6.6
ADMA-20LA1□1	2kW	252	207	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	6.1
ADMA-20LA1□3/4		298	253																7.5
ADMA-30LA1□1	3kW	277	214	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	12
ADMA-30LA1□3/4		323	260																14.1
ADMA-50LA1□1	5kW	353	290	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	16.8
ADMA-50LA1□3/4		399	336																16.8

For absolute encoder, L and LL increase 16mm(50-750W), 8mm(1-5kW with Brake), 13mm(1-5kW w/o Brake)

Model	output	L	LL	LR	LE	LF	LC	LA	LZ	S	LB	T	U	W	LK	Tapping size	KA	Fig.	weight
ADMB-01△A1□1	100W	115	90	25	3	7	60	70	5.5	8	50	3	1.8	3	14	M3 × 6	0	A	1
ADMB-01△A1□3/4		138	113																1.6
ADMB-02△A1□1	200W	125	95	30	3	8	75	90	6.6	14	70	5	3	5	20	M5 × 8	0	A	1.9
ADMB-02△A1□3/4		157	127																2.3
ADMB-04△A1□1	400W	141	111	40	6	12	120	145	9	19	110	6	3.5	6	22	M5 × 8	0	B	2.4
ADMB-04△A1□3/4		173	143																2.8
ADMB-08LA1□1	750W	173	133	63	6	12	120	145	9	19	110	6	3.5	6	22	M5 × 8	0	B	7.5
ADMB-08LA1□3/4		210	170																9.6
ADMB-10LA1□1	1kW	183	143	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M5 × 8	0	B	8.1
ADMB-10LA1□3/4		220	180																10.2

For absolute encoder, L and LL increase 16mm(100-400W), 8mm(750W,1kW with Brake), 13mm(750W,1kW w/o Brake)

Model	output	L	LL	LR	LE	LF	LC	LA	LZ	S	LB	T	U	W	LK	Tapping size	KA	Fig.	weight
ADMC-04LA1□1	400W	202	157	45	3	10	90	100	7	24	80	7	4	8	32	M8 × 16	0	B	4
ADMC-04LA1□3/4		242	197																5.2
ADMC-08LA1□1	750W	232	187	63	6	12	120	145	9	28	110	7	4	8	50	M8 × 16	0	B	5.2
ADMC-08LA1□3/4		278	233																6.6
ADMC-10LA1□1	1kW	252	207	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	6.1
ADMC-10LA1□3/4		298	253																7.5
ADMC-15LA1□1	1.5kW	277	214	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	12
ADMC-15LA1□3/4		323	260																14.1
ADMC-20LA1□1	2kW	338	275	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	15.6
ADMC-20LA1□3/4		384	321																17.7
ADMC-30LA1□1	2.9kW	289	210	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	18.5
ADMC-30LA1□3/4		327	248																24
ADMC-45LA1□1	4.5kW	337	258	79	3.2	18	180	200	13.5	35	114.3	8	3	10	50	M8 × 16	0	B	26.6
ADMC-45LA1□3/4		375	296																32

For absolute encoder, L and LL increase 8mm(400W-1kW), 8mm(1.5kW,2kW with Brake), 13mm(1.5kW,2kW w/o Brake)

Model	output	L	LL	LR	LE	LF	LC	LA	LZ	S	LB	T	U	W	LK	Tapping size	KA	Fig.	weight
ADMG-05HP	500W	227	192	35	3	8	86	100	6.6	16	80	5	2	5	22	M5 × 12	3	B	5
ADMG-10HP	1kW	243	198	45	3	10	100	115	9	22	95	6	2.5	6	32	M6 × 20	3	B	7
ADMG-15HP	1.5kW	237	182	55	4	12	130	145	9	22	110	6	2.5	6	42	M6 × 20	3	B	8
ADMG-20HP	2kW	246	191	55	4	12	130	145	9	28	110	7	3	8	42	M8 × 25	3	B	10
ADMG-35HP	3.5kW	257	192	65	3	16	180	200	13.5	35	114.3	8	3	10	50	M8 × 25	3	B	17
ADMG-45HP	4.5kW	287	222	65	3	16	180	200	13.5	35	114.3	8	3	10	50	M8 × 25	3	B	22
ADMG-55HP	5.5kW	364	285	79	4	19	220	235	13.5	55	200	10	4	16	67	M10 × 25	3	B	37
ADMG-70HP	7kW	421	342	79	4	19	220	235	13.5	55	200	10	4	16	67	M10 × 25	3	B	52

For motors with brake, please confirm to your nearest sales representative.

# Specifications of Servo Amplifiers

## Basic Specifications

Ambient temperature/ storage temperature (Note 1)	0 to +55°C/-10 to +70°C
Humidity	20 to 90%RH or less (without condensation)
Vibration (Note 2)	5.9 m/s <sup>2</sup> (0.6G), 10 to 55 Hz
Installation location	1000m or less above the sea, indoor place (free from corrosive gas and dust)
Protective structure (Note 3)	Open type IP00
Control system	Sine-wave pulse width modulation PWM system
Control mode	Position control/speed control/torque control
Built-in operator	5-digit number display unit, key input x 5
External operator	Windows(R) 95/98/Me, Windows(R) NT/2000 PC connectable (using the RS-232C port)
Encoder monitor signal output	Phase A, B signal output : Line driver signal output (output resolution adjustable) Phase Z signal output : Line driver signal output / open collector signal output
Monitor output	2ch,0 to 3V Voltage output, Speed detection value, Torque command, etc(selectable)
Speed command/limitation input	Analog input: 0 to ± 10 V/Maximum speed (gain adjustable)
Torque command/limitation input	Analog input: 0 to ± 10 V/Maximum torque (gain adjustable)

## single phase 100V, three phase 200V

Model code: ADA-, ADAX-, ADA2-	R5MS	01MS	02MS	04MS	R5LS	01LS	02LS	04LS	08LS	10LS	15LS	20LS	30LS	50LS	
Applicable motor capacity (kW)	0.05	0.1	0.2	0.4	0.05	0.1	0.2	0.4	0.75	1	1.5	2	3	5	
Input power supply capacity(kVA)	0.3	0.4	0.5	1	0.3	0.3	0.5	0.9	1.3	1.8	2.5	3.5	4.8	7.5	
Input power supply(main circuit)	1x100 to 115V +10%, -15%, 50/60Hz ± 5%				3x200 to 230V +10%,-15% 50/60 Hz ± 5%										
Input control power supply	1x200 to 230V +10%, -15% 50/60 Hz ± 5%				1x200 to 230V +10%, -15% 50/60 Hz ± 5%										
Rated speed (min <sup>-1</sup> )	4500				3000				5000						
Maximum speed (min <sup>-1</sup> )	4500				3000				5000						
Maximum torque (Ratio to the rated torque)	300%														
Position/speed feedback	17 bits / rotation Incremental encoder (standard) 17 bits / rotation Absolute encoder (option)														
Speed control range	1:4500				1:5000										
Position command input	Line driver signal (500k pulses/s or less) / open collector signal (200 k pulses / s or less) input 1) Phase difference pulse input (Maximum input frequency is 1/4 of the value above noted) 2) Forward/reverse run direction pulse input 3) Command pulse + sign code input														
Input signal	Contact signal/open collector signal inputs: Servo ON, Alarm reset, Control mode switch, Torque limit, Forward overtravel, Reverse overtravel, Multistage speed 1, Multistage speed 2, Proportional control/exchange gains, Zero speed clamp, Homing limit switch, Homing, Pulse train input enable/forward drive, Position error clear/reverse drive														
Output signal	Open collector signal output/Servo ready, Alarm, Positioning complete, Up to speed, Zero speed detection, Brake release (servo ON answer), Torque limiting, Overload, Alarm code 1~3 (ADA2 only)														
Regenerative braking circuit	Built-in type (Braking resistor not included for R5MS, 01MS, R5LS, 01LS, 02LS)														
Dynamic brake	Actuated at Servo OFF, Trip, or Power OFF (operating condition selectable)														
Protective function	Overcurrent, overload, braking resistor overload, main power overvoltage, memory error, CPU error, main power undervoltage, CT error, ground fault, control power undervoltage, power module error, encoder error, position error, speed error, overspeed error, driving range error, position monitoring timeout error, overtravel error, abnormal temperature, absolute encoder error, absolute encoder battery alarm/error, instantaneous loss of power, absolute encoder counter overflow, motor power unmatch														
Estimated weight (kg)	0.8	0.8	1	1.4	0.8	0.8	0.8	1	1.4	1.9	1.9	4.6	4.6	7.7	

## single phase 230V/three phase 200V, three phase 400V

Model code : ADA3-, ADAX3-	01NSE	02NSE	04NSE	08NSE	15HPE		35HPE		70HPE			
Applicable motor capacity (kW)	0.1	0.2	0.4	0.75	0.5	1.0	1.5	2.0	3.5	4.5	5.5	7.0
Input power supply capacity(kVA)	0.4	0.75	1.2	2.3	1.2	1.8	2.5	3.5	5.6	6.8	8.3	11
Input power supply (main circuit)	1x220 to 230V/3x200 to 230V+10%, -15%, 50/60 Hz ± 5%				3x380 to 480V +10%,-15% 50/60 Hz ± 5%							
Input control power supply	1x200 to 230V +10%, -15% 50/60 Hz ± 5%				1x200 to 240V +10%, -15% 50/60 Hz ± 5%							
Rated speed (min <sup>-1</sup> )	3000				2000							
Maximum speed (min <sup>-1</sup> )	4500				3000							
Maximum torque (Ratio to the rated torque)	300%				250%-380% (see motor specification for detail)							
Position/speed feedback	17 bits/rotation Incremental encoder (standard) 17 bits/rotation Absolute encoder (option)				Incremental encoder (500~65535ppr) Absolute encoder (Serial output)							
Speed control range	1:4500				1:3000							
Position command input (Note 4)	Line driver signal (2M pulses/s or less) Selectable from 1)-3) 1) Phase difference pulse input (Maximum input frequency is 1/4 of the value above noted) 2) Forward/reverse run direction pulse input 3) Command pulse + code input											
Input signal	Contact signal (available for both sink/source type) : Servo ON, Alarm reset, Control mode switch, Torque limit, Forward overtravel, Reverse overtravel, Multistage speed 1/exchange electrical gear, Multistage speed 2/encoder clear, Proportional control/exchange gains, Zero speed clamp/external trip signal, Homing limit switch, Homing, Pulse train input enable/forward drive, Position error clear/reverse drive											
Output signal	Source type output : Servo ready, Alarm, Positioning complete, Up to speed/alarm code 1, Zero speed detection, Brake release (servo ON answer), Torque limiting/alarm code 2, Overload/alarm code 3											
Regenerative braking circuit	Built-in type (Braking resistor not included for 01NSE, 02NSE)											
Dynamic brake	Actuated at Servo OFF, Trip, or Power OFF (operating condition selectable)											
Protective function	Overcurrent, overload, braking resistor overload, main power overvoltage, memory error, CPU error, main power undervoltage, CT error, ground fault, control power undervoltage, external trip signal, power module error, encoder error, position error, speed error, overspeed error, driving range error, position monitoring timeout error, overtravel error, abnormal temperature, absolute encoder error, position data error, sensor fault, motor power unmatch											
Estimated weight (kg)	0.8	0.8	1.4	1.9	1.9		4.6		7.7			

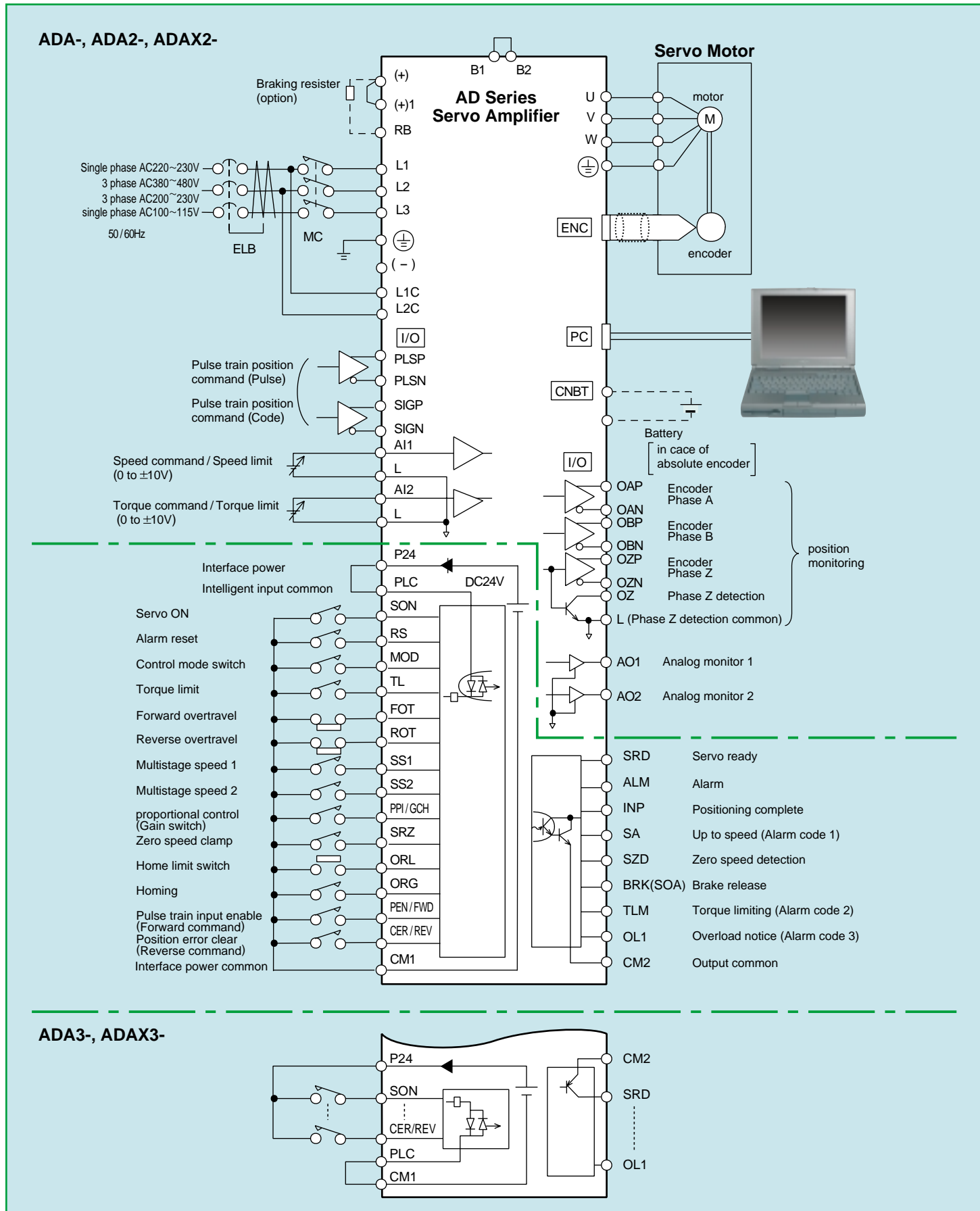
Note 1: The storage temperature is the short-term temperature during transport.

Note 2: The testing method of JIS C0040 is applied.

Note 3: The protective structure conforms to JEM1030.

Note 4: When the phase difference pulse input is selected, set the signal input speed to 500k pulses/s or less for line driver, and 125k pulses/s or less for open collector.

# Connection diagram



¥ ADA-R5LS,01LS,02LS,R5MS,01MS ¥ADA3-01NSE,02NSE ¥ ADA-08LS,04MS ¥ADA3-04NSE  
 ¥ Values in < >for ADA-04LS,02MS



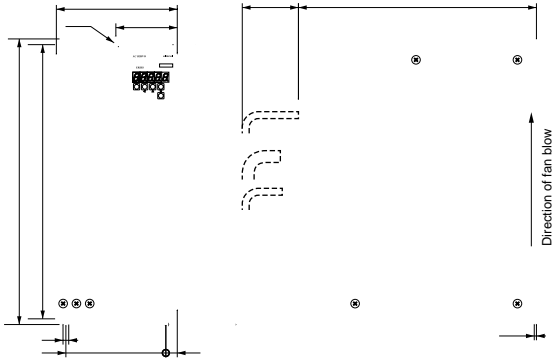
¥ ADA-10LS,15LS ¥ADA3-08NSE



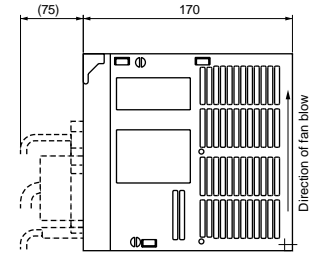
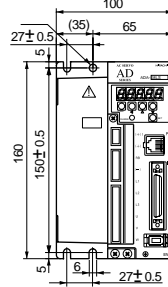
¥ ADA-20LS,30LS



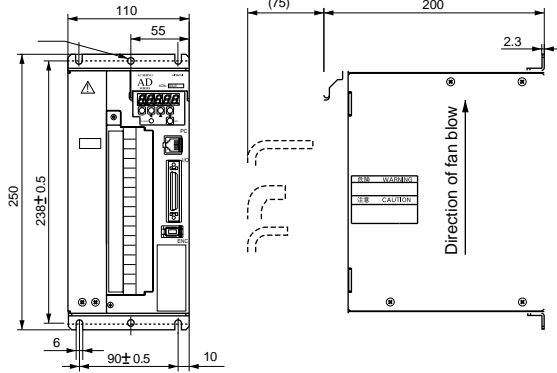
¥ ADA-50LS(45LS)



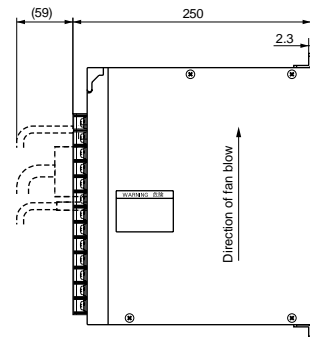
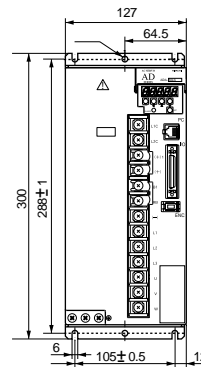
¥ ADA3-15HPE



¥ ADA3-35HPE



¥ ADA3-70HPE



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