



## AC Servo Drive AD Series

**For the highest requirements  
in performance and precision**

- Range of Performance 100 – 7,000 W (0.32 – 33.4 Nm)
- Advanced Drive Technology
- Autotuning
- Built-in Programmable Sequence with max. 512 program steps and 100 positions
- Plug & Play
- Easy programming
- Position / Speed / Torque control
- DeviceNet, SERCOS
- CE, UL, c-UL



# AC Servo Drive AD Series

## High Performance – with AC Servo Drives from Hitachi

Hitachi AD Series AC Servo Drive meets various requirements from demanding applications with its fully featured performance realised by Hitachi's Advanced Motor Technology. With the Autotuning control gains can be automatically tuned to the optimum values according to each application. In connection with the Hitachi Motion-Controller EH-POS4 it is possible to control up to 4 axis. All Servo motors are available with holding brake.

The ADMA series (100-750 W) is equipped with a serial Encoder (17 bit).

These systems are able to identify the connected motor – an additional adjustment from the amplifier according to the motor is not necessary.



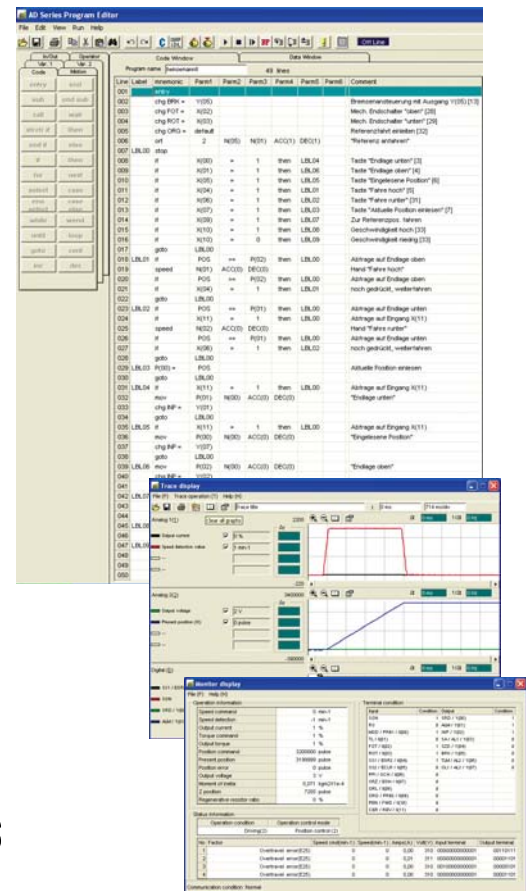
## Smart Servo Drive

The programming software AHF allows simple programming and a very short time for commissioning – also for new user. The Servo Amplifier ADAX3 has a standard integrated programming function for max. 512 program steps and 100 positions.

**For stand-alone applications an additional controller is not necessary.**

The programming language is like BASIC®

- 512 Program steps (6 kB)
  - 7 different reference points
  - 12 Digital-Inputs
  - 8 Digital-Outputs
  - 2 Analog-Inputs
  - 100 positions
  - 16 velocities
  - 16 torques
  - 16 general variables
  - Timer
- etc.



## Worldwide Presence

Your benefit is the high quality of the Hitachi products and the worldwide presence of one of the world's biggest electronics companies.



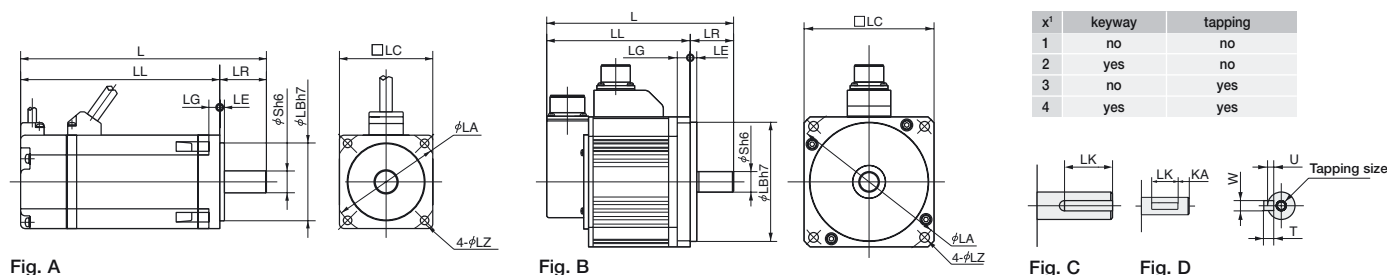
## Specifications of Servo Motors

		Specification											
Input power supply		1 x 230 V / 3 x 200 V				3 x 400 V							
Motor-Type		ADMA-				ADMG-							
Amplifier-Type		01S	02S	04S	08S	05H	10H	15H	20H	35H	45H	55H	70H
		ADA3- / ADAX3				ADA3- / ADAX3							
		01NSE	02NSE	04NSE	08NSE	15HPE			35HPE		70HPE		
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
Rated torque	Nm	0.32	0.64	1.27	2.39	2.4	5	7.5	9.55	16.7	21.5	26.3	33.4
Max. torque	Nm	0.96	1.91	3.82	7.16	9	18.5	20	30	45.5	70	72	86
Rated speed	Nm	3000				2000							
Max. Speed	min <sup>-1</sup>	4500				3000							
JMotor	kgm <sup>2</sup>	0.023	0.12	0.22	0.62	1.84	5.40	8.80	11.8	37.9	46.5	113.5	185
(above: without brake; below: with brake)	x 10 <sup>-4</sup>	0.032	0.16	0.25	0.71	2.18	5.85	9.30	12.3	41.3	49.9	137.5	209
Prefferable Load Inertia		max. 30 x J <sub>Motor</sub>				max. 5 x J <sub>motor</sub>							
Feedback		Serial Encoder 17 bit (Optional: 17 bit absolute value encoder)				Incremental encoder 4096 ppr 8192 ppr							
Protection		IP55 excluding connector and the part passed through by the shaft				IP67 excluding the part passed through by the shaft							

## Brake

Principle		Electromechanical brake, only usable as holding brake											
Power supply		DC 24 V, ±10 %				DC 24 V, ±10 %							
Static brake torque (min.)	Nm	0.34	1.5	1.5	2.6	2.9	9.8	9.0	12	32	32	90	90
Rated current (20 °C)	A	0.27	0.27	0.27	0.38	0.33	0.83	0.87	1.0	1.4	1.4	1.3	1.3
Resistor of the coil (20 °C)	ohm	89	89	89	64	72	28	28	23	17	17	18	18
Power consumption (20 °C)	W	6.5	6.5	6.5	9.0	8.0	20	21	25	34	34	32	32
Dragging (max.)	ms	25	60	60	50	30	100	100	100	150	150	300	300
Release time (max.)	ms	20	10	10	15	20	30	30	30	40	40	140	140

## Motor Dimensions

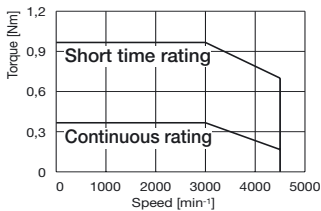


Type	Performance	L	LL	LR	LE	LG	LC	LA	LZ	S	LB	T	U	W	LK	Tapping size	KA	Fig.	weight
ADMA-01...A1x1	100 W	122	96.5	25	2.5	5	40	46	4.5	8	30	3	1.8	3	14	M3 x 6	-	A	0.55
ADMA-01...A1x3/4		157	132																0.8
ADMA-02...A1x1	200 W	130	100	30	3	7	60	70	5.5	14	50	5	3	5	20	M5 x 8	-	C	1.1
ADMA-02...A1x3/4		168	138																1.7
ADMA-04...A1x1	400 W	158	128	40	3	8	75	90	6.6	19	70	6	3.5	6	22	M5 x 8	-	-	1.6
ADMA-04...A1x3/4		196	166																2.2
ADMA-08...A1x1	750 W	183	143	40	3	8	75	90	6.6	19	70	6	3.5	6	22	M5 x 8	-	-	3.1
ADMA-08...A1x3/4		220	180																3.9
ADMG-05HP142	0.5 kW	228	193	35	3	8	86	100	6.6	16	80	5	3	5	25	M5 x 12	2	-	3.0
ADMG-05HP145		263	228																4.2
ADMG-10HP142	1 kW	241	196	45	3	10	100	115	9	22	95	6	3.5	6	32	M6 x 20	3	-	5.4
ADMG-10HP145		276	231																6.8
ADMG-15HP142	1.5 kW	224	169	55	4	12	130	145	9	22	110	6	3.5	6	42	M6 x 20	3	-	7.8
ADMG-15HP145		260	205																9.4
ADMG-20HP142	2 kW	242	187	55	4	12	130	145	9	28	110	7	4	8	42	M8 x 25	3	-	9.8
ADMG-20HP145		282	227																11.6
ADMG-35HP142	3.5 kW	268	203	65	3	16	180	200	13.5	35	114.3	8	5	10	50	M8 x 25	3	-	17.7
ADMG-35HP145		318	253																23.1
ADMG-45HP142	4.5 kW	283	218	65	3	16	180	200	13.5	35	114.3	8	5	10	50	M8 x 25	3	-	21.7
ADMG-45HP145		333	268																27.1
ADMG-55HP142	5.5 kW	331	252	79	4	19	220	235	13.5	55	200	10	6	16	67	M10 x 25	3	-	34.8
ADMG-55HP145		388	309																45.5
ADMG-70HP142	7 kW	389	310	79	4	19	220	235	13.5	55	200	10	6	16	67	M10 x 25	3	-	52.8
ADMG-70HP145		447	368																63.5

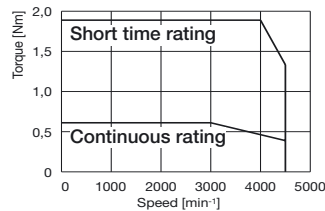
## Technical Data of the Amplifier

Type: ADA3-, ADAX3-	01NSE	02NSE	04NSE	08NSE	15HPE			35HPE		70HPE		
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)	1 x 220...230 V / 3 x 200...230 V +10 %, -15%				3 x 380...480 V +10 %, -15 %, 50/60 Hz ±5 %							
Input control power supply	1 x 200...230 V +10 %, -15 %				1 x 200...240 V +10 %, -15 %, 50/60 Hz ±5 %							
Rated speed (min <sup>-1</sup> )	3000				2000							
Max. Speed (min <sup>-1</sup> )	4500				3000							
Max. torque (Ratio to the rated torque)	300 %				250 % - 380 % (see motor specification for detail)							
Position/speed feedback	Serial Encoder 17 bit, optional absolute encoder				Incremental encoder, absolute encoder (Serial output)							
Speed control range	1:4500				1:3000							
Position command	Line driver (max. 2 M pulses/s)											
Input signal	Selectable from: a) Phase difference pulse input (Maximum input frequency is 1/4 of the value above noted)											
	b) Forward/reverse run direction pulse input c) Command pulse + code input											
Output signal	Contact signal/open collector signals 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 command, Position error clear/reverse command											
	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											
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, braking resistor overload, over voltage, EEPROM, CPU, undervoltage, CT error, ground fault, encoder Abnormal position, output stage, external error, Abnormal revolution, temperature, absolute encoder, etc.											
Estimated weight (kg)	0.8	0.8	1.4	1.9	1.9			4.6		7.7		
Ambient temperature	0...+55 °C											
Humidity	max. 90 % (without condensation)											
Vibration (Note 2)	5.9 m/s <sup>2</sup> (0.6 G), 10 to 55 Hz (according JIS C0040)											
Installation location	1000 m or less above the sea, indoor place (free from corrosive gas and dust)											
Protective structure	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											
Programming software	AHF, usable for Windows® 95/98/ME, Windows® NT/2000/XP PC (RS-232C)											
Encoder monitor signal output	Phase A, B signal output: Line driver (output resolution adjustable) Phase Z signal output: Open Collector											
Analog outputs	2ch, 0...3 V, Voltage output, Speed detection value, Torque command, etc.											
Speed command/limitation input	0...10 V											
Torque command/limitation input	0...10 V											

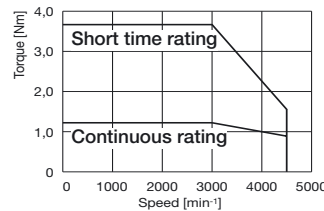
ADMA-01S



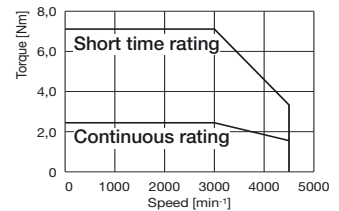
ADMA-02S



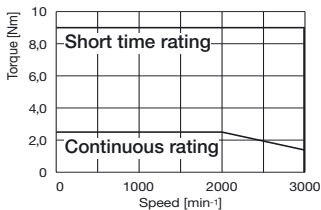
ADMA-04S



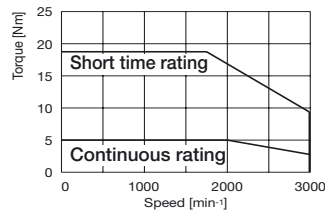
ADMA-08S



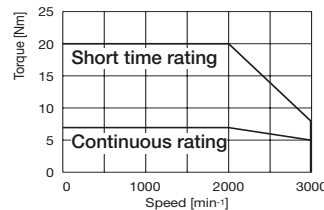
ADMG-05H



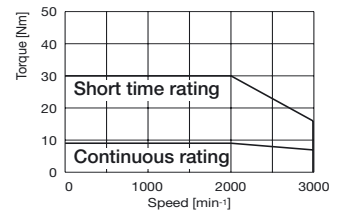
ADMG-10H



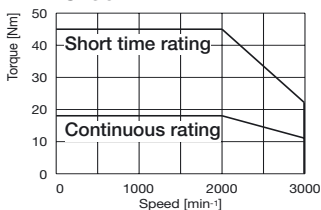
ADMG-15H



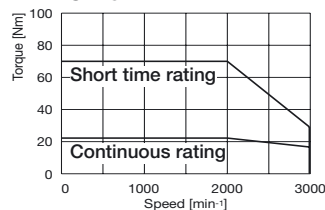
ADMG-20H



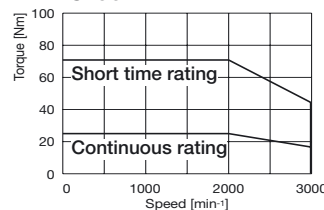
ADMG-35H



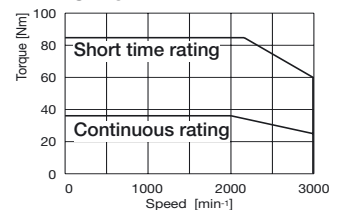
ADMG-45H



ADMG-55H



ADMG-70H



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