HarmonicDrive®
New Product News
Vol. 41

RTEX Realtime Express
EtherCAT®

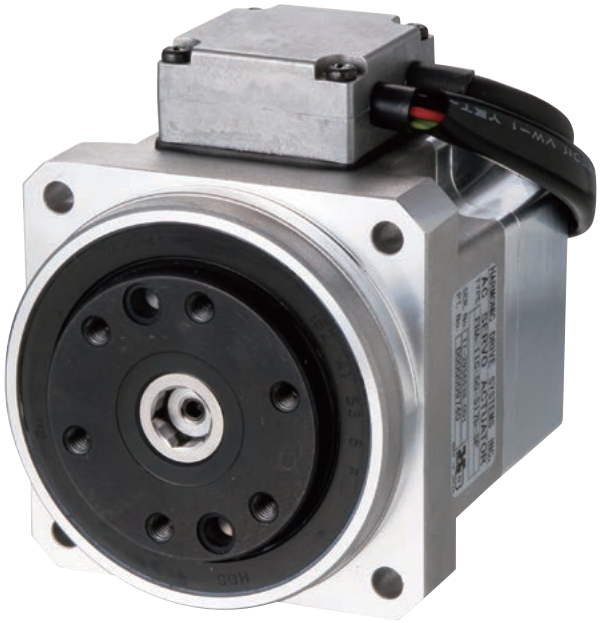
HarmonicDrive®

Compact flat AC servo actuator
FHA-C mini series

+

Panasonic Corporation
MINAS
A6N/A6B/A6S

HarmonicDrive®





Panasonic Corporation
MINAS A6N compatible with RTEX (RealtimeExpress)
MINAS A6B compatible with EtherCAT
MINAS A6S compatible with Pulse/Analog/Modbus

Compatible with the latest servo amplifier

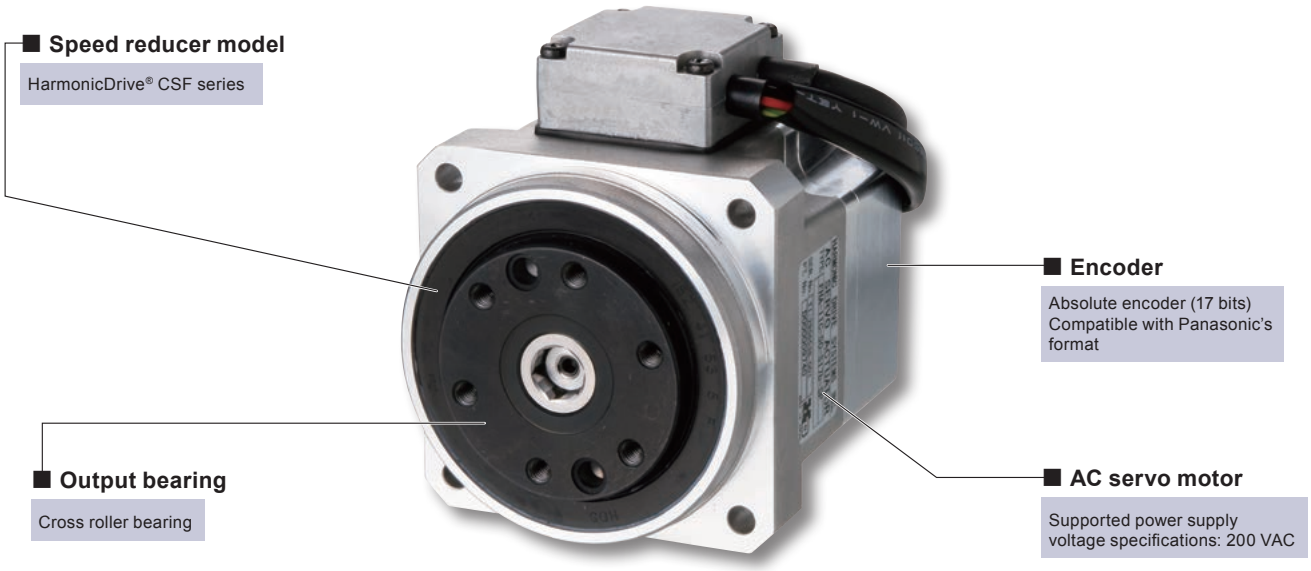
Compact flat AC servo actuator FHA-C series has become compatible with the latest servo amplifier MINAS A6 series manufactured by Panasonic.
Compatibility with RTEX, EtherCAT and general communication (serial, analog I/O, Modbus) contributes to integration of the user interface, and the compact size and flat shape contribute to reduction in size of the device configuration.

Contact: AC servo actuator FHA-C mini series (Harmonic Drive Systems Inc.)
AC servo amplifier MINAS A6 series (Panasonic Corporation)

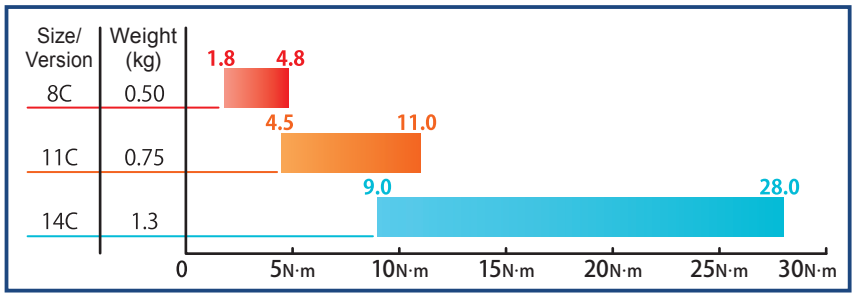
Composition

Compact Flat

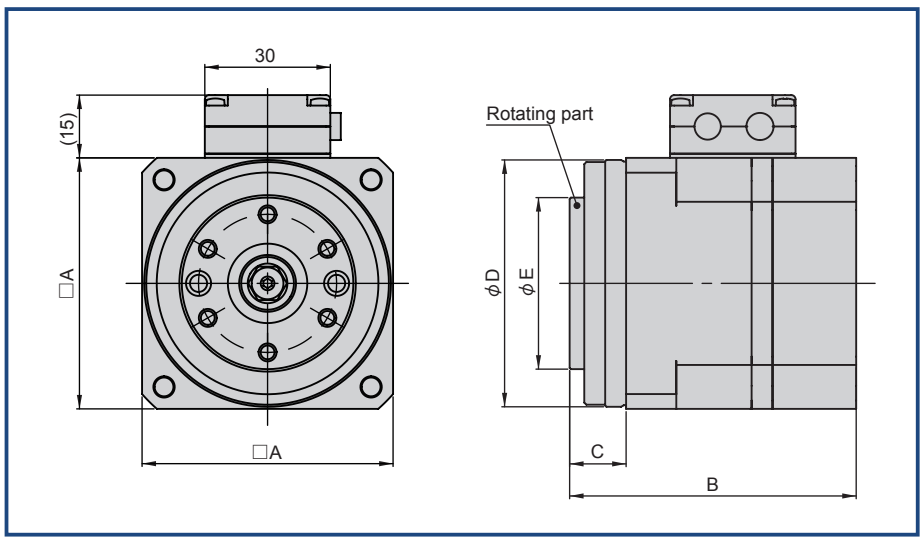
This is the AC servo actuator consisting of both a compact HarmonicDrive® and a flat AC servo motor.
The thin and compact shape and structure simplifies the entire device structure.
The size can be selected from three types: 8, 11, and 14.



Maximum torque map



External dimensions



[Unit: mm]

Symbol \ Type	FHA-8C	FHA-11C	FHA-14C
□A	50	60	75
B	61.8	68.5	78
C	13	13.5	18.5
ϕD	49 h7	59 h7	74 h7
ϕE	33.5 h7	41 h7	52.5 h7

Panasonic AC servo amplifier MINAS A6



The MINAS A6 series is the latest servo amplifier manufactured by Panasonic Corporation, and is compatible with the various types of open network including Realtime Express uniquely developed by Panasonic Corporation.

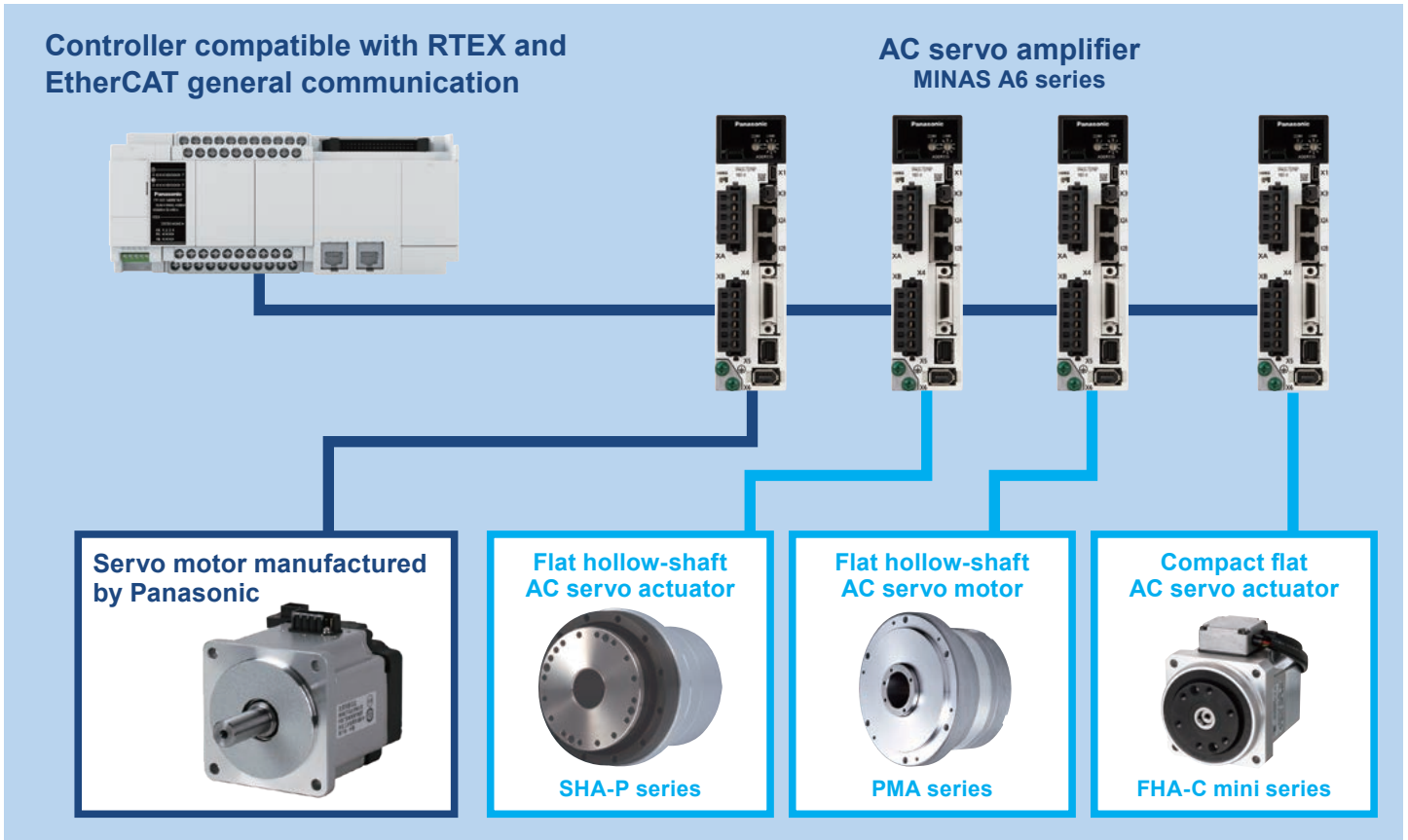
- **High-speed synchronous communication network (100 Mbps)**
  A6N series: RealtimeExpress (RTEX)
  A6B series: EtherCAT
- **General communication network (230 kbps)**
  A6S series: Pulse/Analog/Modbus

Combination of a servo amplifier with a relay cable

SHA Series	Reduction ratio	Servo amplifier model*1*2			Relay cable model *3	
		A6N series	A6B series	A6S series	Motor	Encoder *4
FHA-8C	30	MADL■05N□	MADL■05B□	MADL■05S□	EWD-MB**-A06-TN-P	MFECA0**0EAE (Equipped with the battery box)
	50					
	100					
FHA-11C	30					
	50					
	100					
FHA-14C	30	MADL■15N□	MADL■15B□ MADL■05B□	MADL■15S□ MADL■05S□		
	50	MADL■05N□				
	100					

*1: ■ is replaced with the symbol that indicates whether to enable the safety function. T: Compatible with the safety function (Not available in the A6 SE, SG series) N: Without the safety function
*2: □ is replaced with the symbol that indicates the compatible communication. E: Position-control type (combination with the type not equipped with the safety function)
F: Multi-function type (combination with the type equipped with the safety function)
G: Modbus communication type (only for the A6S series) (combination with the type not equipped with the safety function)
*3: "**" in the model code indicates the cable length (03 = 3 m, 05 = 5 m, 10 = 10 m, 20 = 20 m).
*4: Connect the actuator side of the encoder relay cable to the encoder connector conversion cable that comes with the actuator.
*5: For the servo amplifier and encoder relay cable, contact Panasonic Corporation.

System image



Ordering code

FHA	8	C	-	30	-	14	S17b	G	-	C	-	A6	-	SP
(1)	(2)	(3)		(4)		(5)	(6)	(7)		(8)		(9)		(10)

(1)	**Model name**	AC servo actuator FHA-C mini series
(2)	**Size**	8, 11, 14
(3)	**Version symbol**	C
(4)	**Reduction ratio (expressed by R of 1/R)**	30: 1/30 50: 1/50 100: 1/100
(5)	**Encoder format**	14: Panasonic's format

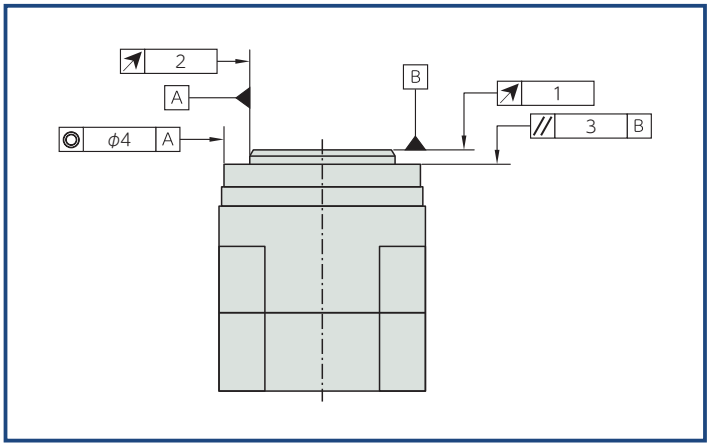
(6)	**Encoder type/Resolution**	S17b: 17-bit absolute encoder 131072 pulse/revolution
(7)	**Input power supply voltage**	G: 200 VAC
(8)	**Connector specification**	C: Standard connector attached
(9)	**Symbol of the combined amplifier**	A6: MINAS A6 series
(10)	**Special specifications**	Blank: Standard, SP: Special product

Specification

Item \ Type		FHA-8C			FHA-11C			FHA-14C		
		30	50	100	30	50	100	30	50	100
Input power supply voltage	V	AC200			AC200			AC200		
Maximum Torque*1	N·m	1.8	3.3	4.8	4.5	8.3	11	9.0	18	28
Limit for continuous torque*1*2	N·m	0.75	1.5	2.0	1.8	2.9	4.2	3.5	4.7	6.8
Maximum speed*1	r/min	200	120	60	200	120	60	200	120	60
Maximum current*1	A	0.61	0.64	0.48	1.5	1.6	1.1	2.9	3.2	2.4
Limit for moment load	N·m	15			40			75		
Unidirectional positioning accuracy	Second	150	120	120	120	90	90	120	90	90
Output shaft resolution	Pulse/ Revolution	3932160	6553600	13107200	3932160	6553600	13107200	3932160	6553600	13107200
Mass (without brake)	kg	0.50			0.75			1.3		

The values in the table above show typical values for the output shaft.
*1: They are typical characteristics in the case of combinations with the standard amplifier (driven with the ideal sine wave).
*2: They are the values produced at the saturation temperature when mounted on the aluminum heat sink.
FHA-8C: 150 x 150 x 6 [mm] FHA-11C: 150 x 150 x 6 [mm] FHA-14C: 200 x 200 x 6 [mm]

Mechanical accuracy



[Unit: mm]

Accuracy Item	8C	11C	14C
1. Output shaft surface runout	0.010	0.010	0.010
2. Output shaft radial runout	0.010	0.010	0.010
3. Parallelism between output shaft and mounted surface	0.040	0.040	0.040
4. Concentricity between output shaft and fitting part	0.040	0.040	0.040

■ **Please contact our sales department with any questions.**

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https://www.hds.co.jp/

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The academic or generic term of our "HarmonicDrive" products is "strain wave gearing".

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HarmonicGearhead® HarmonicLinear® BEAM SERVO® Harmonicsyn®

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