

Driver for direct drive actuator compatible type  
AX9000GS and AX9000GH PNP I/O specifications

**New Products**


# Introducing PNP I/O specifications!



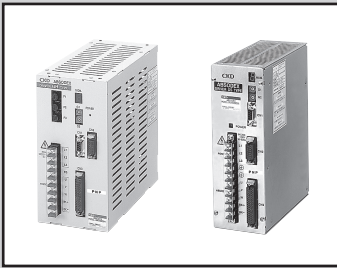
## Features

- PNP I/O compatible  
Secure I/O design to be provided.
- CE marking
- Compatibility  
Freely combined drivers, actuators and cables

\* This is a custom order. Please contact to your nearest CKD sales office for details.

 Refer to “Precautions” on page 3 and in “Direct drive actuator general catalog; No. CB-32A” before starting use.

**CKD Corporation**  
CC-929A



Direct drive actuator

# GS / GH type driver

## PNP I/O specifications

### Common specifications

Descriptions	Model	
	GS type driver AX9000GS	GH type driver AX9000GH
Power voltage	1. 200 VAC -10% to 230 VAC +10% three phase (standard) (Note 1) 2. 100 VAC -10% to 115 VAC +10% single phase (-J1: Option)	
Power supply frequency	50/60 Hz	
Structure	Driver and controller integrated type (open frame)	
Ambient temperature range	0 to 50°C	
Ambient humidity range	20 to 90%RH (with no dew condensation)	
Conservation ambient temperature range	-20 to 80°	
Conservation ambient humidity range	20 to 90%RH (with no dew condensation)	
Atmosphere	The operation area must be corrosive gas and dust-free.	
Noise-resistance	1000V (P-P), pulse amplitude 1μsec., start up 1nsec.	
Vibration resistance	4.9m/s <sup>2</sup>	
Weight	2kg	3.2kg

Note1) Single phase 200 to 230 VAC is available for the model whose max. torque is 50N·m or less.

### Power supply wattage, breaker capacity

#### GS type driver

Actuator model no.	Driver model no.	Power supply wattage (KVA)		Breaker capacity
		Max.	Rated	Rated current (A)
AX2006G	AX9000GS	0.8	0.5	10
AX2012G, AX4009G		1.0	0.5	
AX2018G, AX4022G		1.5	0.5	
AX4045G		2.0	0.8	
AX4075G				

#### GH type driver

Actuator model no.	Driver model no.	Power supply wattage (KVA)		Breaker capacity
		Max.	Rated	Rated current (A)
AX4150G	AX9000GH	3.0	0.8	20
AX4300G		4.0	1.5	
AX4500G		4.0	2.0	

### CN3 input signal

Pin No.	Signal name	Logic	Judgment
1 to 2	External power input +24V±10%		
3 to 4	External power input GND		
5	Program No. selection input (bit 0)	Positive	Level
6	Program No. selection input (bit 1)	Positive	Level
7	Program No. selection input (bit 2)	Positive	Level
8	Program No. selection input (bit 3)	Positive	Level
9	Program No. selection input (bit 4)/ Program No. setting input, 2nd digit	Positive	Level Edge
10	Program No. setting input, 1st digit	Positive	Edge
11	Reset input	Positive	Edge
12	Return to origin command input	Positive	Edge
13	Start input	Positive	Edge
14	Program stop input	Positive	Edge
15	Continuous rotation stop input	Positive	Edge
16	Answer input	Positive	Edge
17	Emergency stop input	Negative	Level
18	Brake release input	Positive	Level

### CN3 pulse string input signal

Pin No.	Signal name
19	PULSE/UP/A phase
20	-PULSE/-UP/-A phase
21	DIR/DOWN/B phase
22	-DIR/-DOWN/-B phase

### Performance specifications

Descriptions	Model	
	GS type driver AX9000GS	GH type driver AX9000GH
Number of control axis	1 axis, 540672 pulses/rotation (name: A axis)	
Angle input increment	° (degree), pulse, index number	
Min. angle setting unit	0.001°, 1 pulse	
Speed input increment	Sec., rpm	
Speed setting range	0.01 to 100 sec./0.01 to 300rpm (Note 2)	0.01 to 100 sec./0.01 to 100rpm (Note 2)
	(Note 2) The max. rotation speed differs depending on the actuator to be connected.	
Equal index number	1 to 255	
Max. command value	7-digits input ±9999999	
Timer	0.01 to 99.99 sec.	
Programming language	NC language	
Programming method	The data is set through RS232C port with Interactive terminal or PC, etc.	
Operation mode	Automatic, MDI, jog, single block, servo OFF or pulse string input mode	
Coordinates	Absolute, incremental	
Acceleration curve	<5 type> Modified sine (MS), modified constant velocity (MC/MC2), modified trapezoidal (MT) or trapezoid (TR)	
Status display	LED power display	
Operating indication	7-segments LED display	
Communication interface	RS-232C conformed	
I/O signal (PNP I/O)	<Input> Return to origin command, reset, start, stop, continuous rotation stop, emergency stop, answer, program No. selection, brake release, program No. setting or pulse string input <Output> Alarm 1/2, positioning complete, in-position, start input waiting M code 8 point, during indexing 1 (Z phase output)/during indexing 2, timing, M code strobing or index position strobing	
Program capacity	6000 characters (256 programs)	
Electronic thermal	Overheat protection of actuator	

### CN3 output signal

Pin No.	Signal name	Logic
33	M code output (bit 0)	Positive
34	M code output (bit 1)	Positive
35	M code output (bit 2)	Positive
36	M code output (bit 3)	Positive
37	M code output (bit 4)	Positive
38	M code output (bit 5)	Positive
39	M code output (bit 6)	Positive
40	M code output (bit 7)	Positive
41	In-position output	Positive
42	Positioning complete output	Positive
43	Start input waiting output	Positive
44	Alarm output 1	Negative
45	Alarm output 2	Negative
46	Output during indexing 1/Z phase output (pulse string input mode)	Positive
47	Output during indexing 2	Positive
48	Timing output (Note 3)	Positive
49	Index position strobing output	Positive
50	M code strobing output	Positive

Note 3) If rotated continuously in CCW, the output of time can not be used.

### How to order

Set model no.

<Example> **AX4045GS**  
**AX4150GH** -K- X012345

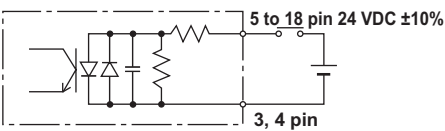
Driver model no.

<Example> **AX9000GS**  
**AX9000GH** -K- X012345

\* As custom order, indicate “-X” and 6 digits numbers after model no. The specifications will be decided after meeting with the customer. The custom model number of driver is same as the whole set model no. of the custom model.

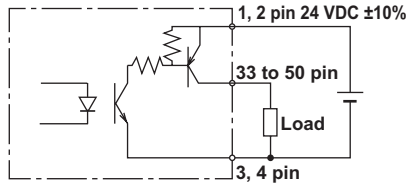
### CN3 I/O circuit specifications

#### ● Input circuit



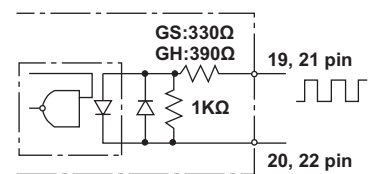
Rated voltage 24 VDC  $\pm 10\%$   
Rated current 7.5mA (at 24 VDC)

#### ● Output circuit



Rated voltage 24 VDC  $\pm 10\%$   
Rated current 30mA (Max.) (GS type)  
Rated current 150mA (Max.) (GH type)

#### ● Pulse string input circuit

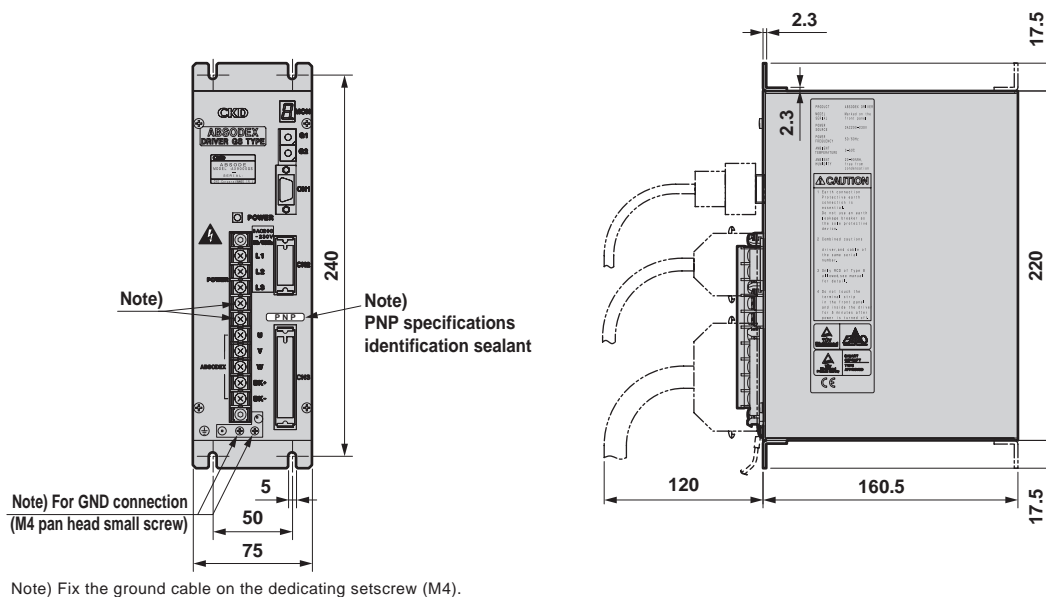


Rated voltage 5 VDC  $\pm 10\%$   
Max. input frequency  
Line driver 400Kpps  
Open collector 250Kpps

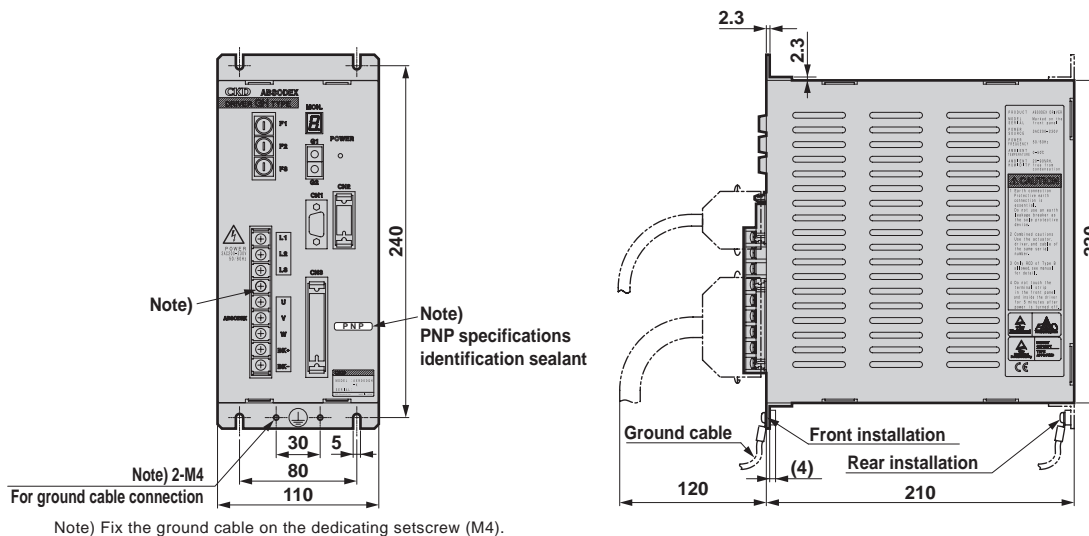
# GS-GH type driver

## CE marking products dimensions

### ● GS type driver (-K)



### ● GH type driver (-K)



## ⚠ Safety precautions

- Care must be taken as electric wire chips or foreign matters, etc., must not be admitted into the product during wiring.
- Consult with CKD when using this product where dust or oil fumes could get in the driver.
- The serial transmission slave unit (AX-0PX-7G or AX-0PX-7D) can not be connected to this product.
- I/O connector is PNP I/O specifications.

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 If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.

## CKD Corporation

<Website>  
<http://www.ckd.co.jp/>

本社・工場	〒485-8551 愛知県小牧市応時2-250	TEL(0568)77-1111	FAX(0568)77-1123
営業本部	〒485-8551 愛知県小牧市応時2-250	TEL(0568)74-1303	FAX(0568)77-3410
Overseas Sales dept.	2-250 Uji Komaki, Aichi 485-8551, Japan	TEL(0568)74-1338	FAX(0568)77-3461
東京支店	〒1105-0013 東京都港区浜松町1-31-1 (文化放送メディアプラス4階)	TEL(03)5402-3620	FAX(03)5402-0120
名古屋支店	〒485-8551 愛知県小牧市応時2-250	TEL(0568)74-1356	FAX(0568)77-3317
大阪支店	〒550-0001 大阪府西区土佐堀1-3-20	TEL(06)6459-5770	FAX(06)6446-1945