

5 Phase NanoDrive™ Step Driver

INS50 Series

Operation Manual

NYDEN USA

A subsidiary of **MYCOM**®, Inc.

1. Specifications

Driver Model	INS50-110	INS50-210
Input Voltage	AC100-120V±10% 50/60Hz	
Driver Type	Star Bipolar, Constant Current Chopper	
Phase Current	1.4 A	2.8 A
Resolution	Basic Step : 0.72° 1, 1/2, 1/2.5, 1/5, 1/8, 1/10, 1/20, 1/40, 1/50, 1/100, 1/125, 1/200, 1/250, 1/500, 1/1000 (Maximum 500,000 steps/revolution)	
Functions	Auto current down at standstill, Auto current cut, MONITOR and OVERHEAT indicators outputs, Resolution Selection	
Input Pulse	All opto-isolated. Resistance 390Ω Voltage L : 0~0.5V H : 4~5V CW (PULSE) 、 CCW (CW/CCW) 、 CO、 SEL	
Signal Output	MONITOR、 HEAT signal output. All opto-isolated. 25V 10mA	
Insulation Voltage	Between Voltage-in terminal and Case	1.0kV (60Hz)
	Between Voltage-in terminal and Signal Terminal	2.0kV (60Hz)
Insulation Resistance	100MΩ or higher with 500V under room temperature and humidity <ul style="list-style-type: none"> ▪ Between Voltage-in terminal and Case ▪ Between Voltage-in terminal and Signal Terminal 	
Operating Temperature	0 ~ +40°C	
Operating Humidity	Below 80%	
Weight	1000 g	
Accessories	Operation Manual, Connectors (Part Number XHP-2 x1, SXH-001T-PO.6 x2)	
Recommended Motors	PF564-AC (BC) , PF566-AC (BC) , PF569-AC (BC) , PF596-AC (BC) , PF599-AC (BC) , PF5913-AC (BC)	PF569H-AC (BC) , PF596H-AC (BC) , PF599H-AC (BC) , PF5913H-AC (BC)

2. Part Number Identification and Default Settings

INS50-110-566BC

Series

Unit Number

Combination of Driver and Motors

INS50		
Unit Number	Motor Model	Driver Model
564AC (BC)	PF564-AC (BC)	INS50-110
566AC (BC)	PF566-AC (BC)	
569AC (BC)	PF569-AC (BC)	
596AC (BC)	PF596-AC (BC)	
599AC (BC)	PF599-AC (BC)	
5913AC (BC)	PF5913-AC (BC)	
569HAC (BC)	PF569H-AC (BC)	INS50-210
596HAC (BC)	PF596H-AC (BC)	
599HAC (BC)	PF599H-AC (BC)	
5913HAC (BC)	PF5913H-AC (BC)	

INS50-110

SERIES

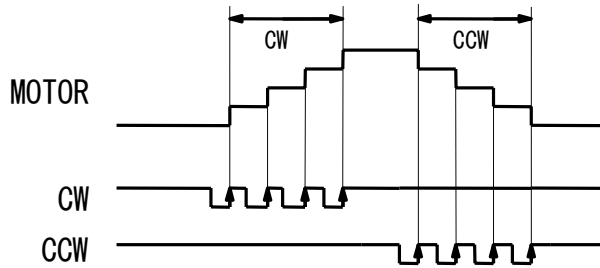
Signal Input Type: 0 : BiClock (Default)
 Voltage: 1 : AC100V 2: AC200V
 Phase Current: 1 : 1.4A 2: 2.8A

Driver Model	INS50-110	INS50-210
Phase Current	1.4 A	2.8 A
Auto Current Off	On	
Auto Current Cut	On	
Input Pulse Signal	2 Clocks	
Resolution	Full Step	

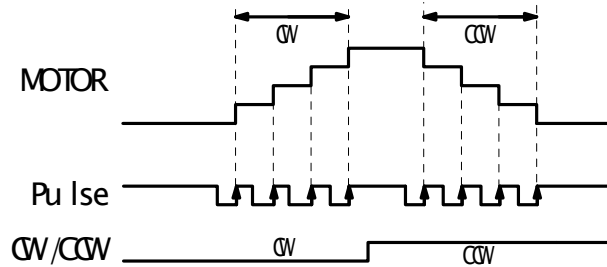
3. Pulse Waveform

3.1 Pulse Signal Input

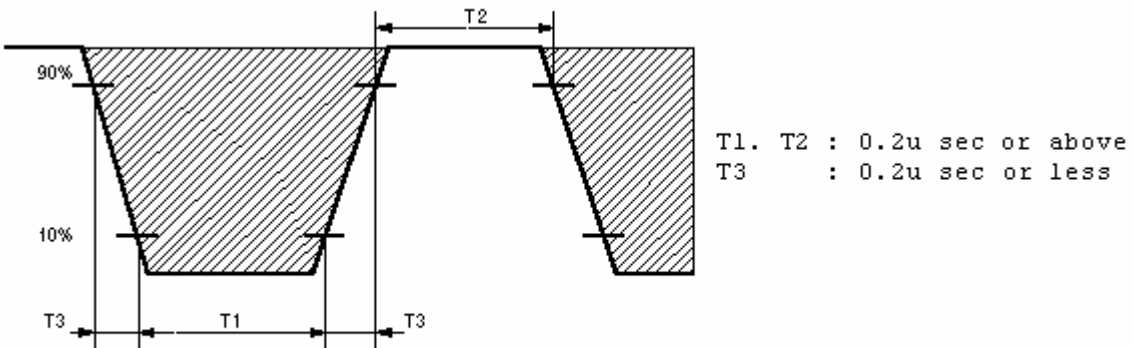
2 Clock (Bi-Clock)



1 Clock (Gate)

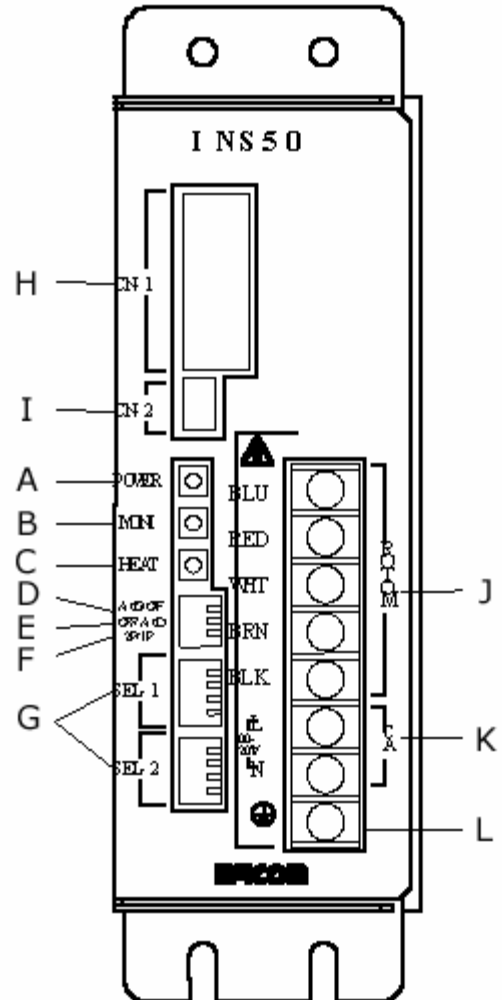


3.2 Pulse Waveform Timing Diagram



4. Driver Functions

- A. Power LED
On when AC Power is connected.
- B. Monitor LED
On when pulses are generated.
- C. Heat LED
On when driver is overheated.
- D. A. CO/OFF
Automatic Current Off Function.
- E. OFF/A. CD
Automatic Current Down Function On/Off Switch
- F. 1P/2P (Input Pulse Type Selector Switch)
1P=1 Clock, 2P=2 Clock
- G. Nanostep Resolution Selection.
- H. Input Signals Connector
- I. Remote Control Nanostep Resolution Connector
- J. Motor lead terminals
Color coded motor leads are connected to these Terminals. Note: No connections should be made while the driver power is ON.
- K. Power Supply Input Terminals
- L. Chassis Ground



4.1 Explanation

4.1.1 Power LED

LED on when power is connected.

4.1.2 Monitor LED (MONI)

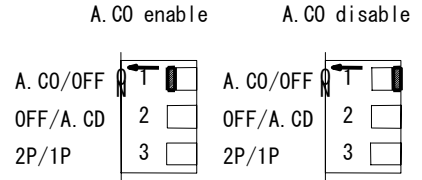
When output is generated LED will on. CN-1 MONI terminal will output a pulse signal.

4.1.3 Overheat LED (HEAT)

When temperature is over +70°C, HEAT LED will on and output signal to CN-1 HEAT terminal.

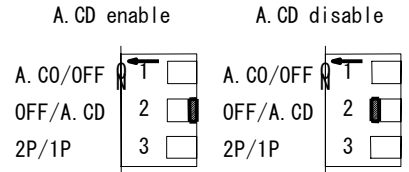
4.1.4 Automatic Current Off (A. CO)

Auto current cutback feature when the motor is at standstill (idle) to reduce motor heat build up when not running.



4.1.5 Automatic Current Down (A. CD)

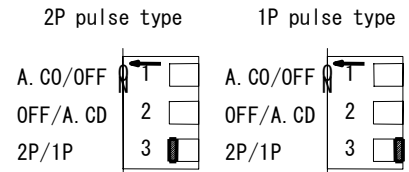
If the motor holding torque at stand still is not needed, the current will cut 50% off the running current. This will help to minimize motor heating. This function is activated 200mS after the motor stops.



4.1.6 Input pulse type selector switch (2P/1P)

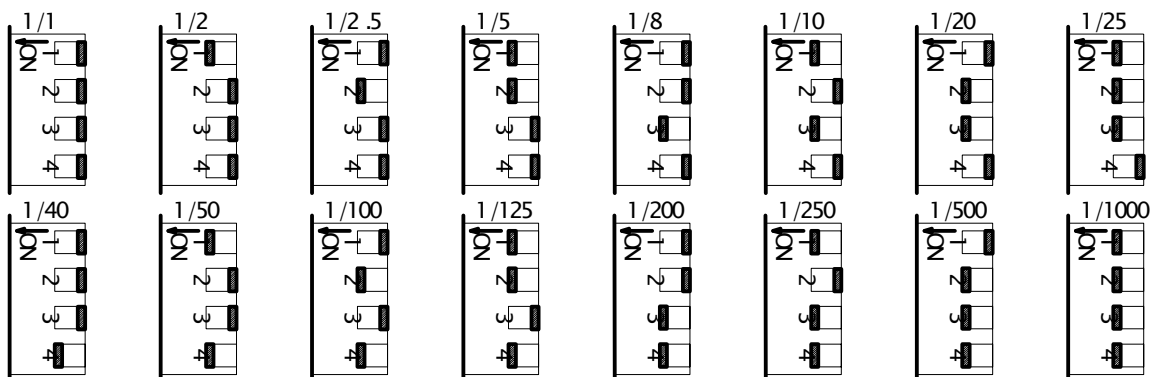
When set to 2P position, the driver will accept CW pulse train and CCW pulse train inputs.

When set to 1P position, the driver will accept Step & Direction inputs.



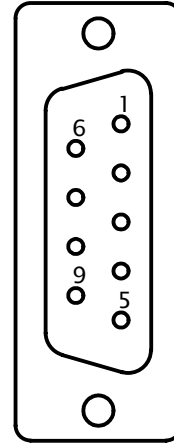
4.1.7 Resolution Selector Switch

INS Series can store up to 2 different kinds of resolution. SEL-1 and SEL-2. Users can remote switch over using CN-2. There are total 16 different kinds of selection.



4.1.8 Input Signals Connector (CN-1)

Pins definition			
1	CW+	6	CO-
2	CW-	7	MON I
3	CCW+	8	HEAT
4	CCW-	9	COM
5	CO+		



D type, 9 pin connector
Part Number XM2D-0901

4.1.9 Switch Between 2 Resolution Settings. (CN-2)

User can switch the resolution (Set by SEL-1 and SEL-2) using CN-2 connector.

High Level: SEL-2 resolution is selected and used.

Low Level or No Connection: SEL-1 resolution is selected and used.

Accessories:

Housing: XHP-2

Connector: SXH-001T-P0.6

Note 1: If both SEL-1 and SEL-2 in FULL STEP mode, switch function cannot be used.

Note 2: Stop the motor before switching the resolution, otherwise the motor will lose the position.

4.1.10 Motor Lead Terminals

Follow the color code and connect the motor leads to the terminal.

4.1.11 AC Power Connector

100V Type AC Driver. Use 100-120V 50/60Hz power source.

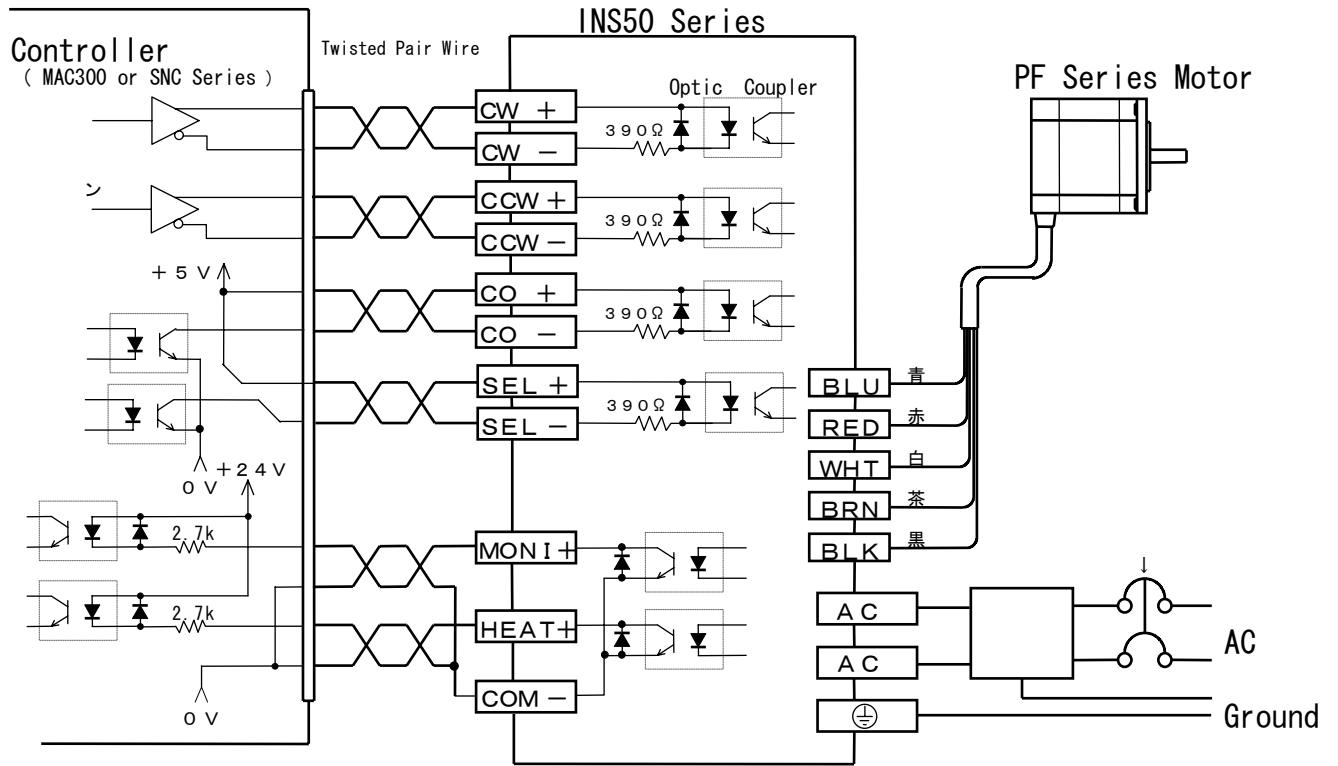
200V Type AC Driver. Use 200-220V 50/60Hz power source.

Power wire, AWG18 0.75mm² or above is recommended.

4.1.12 Chassis Ground

For safety, it is recommended using AWG18 0.75mm² or above wire to connect the chassis.

5. Connection Example



6. Dimensions

