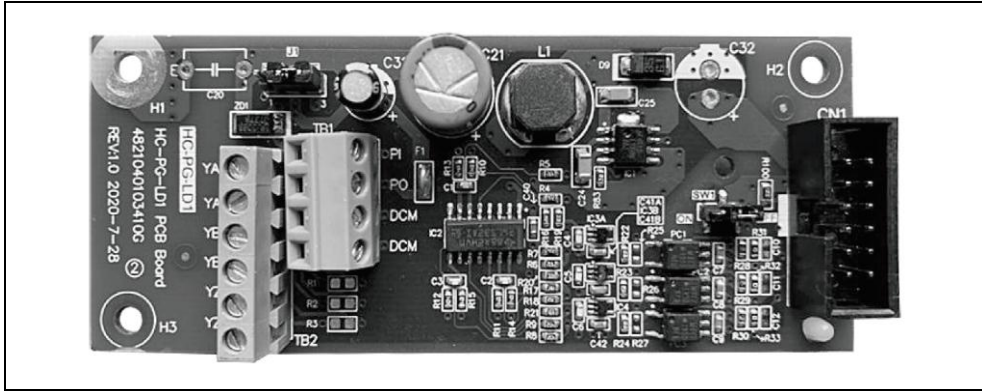# HC-PG-LD1(5V Line drive) S3100 series PG card
Operation manual

Thank you to purchase SAVCH HC-PG-LD1 card .

1. External view

2. Terminal instructions

| Terminal	Functions
PI	External encoder input power supply Input power source: DC+5V±10%,≥200mA
PO	Internal encoder output power supply Output power source: DC+5V 0%~+10% , ≥200mA (When Encoder loading current over 200mA, please select external power)
DCM	Common port for power source and signal
A+、A- B+、B- Z+、Z-	Encoder feedback signal input terminals(signal pulse Max 100kHz) Cable no more than 100m (when Cable specification is AWG16).(If test Z phase will be phase lack, you could set up by HC-PG-LD1 SW1 , if you do not detect Z phase signal be phase lack ,please do the factory default on OFF position.

Notes:

Terminal use screw :M2, Cable:AWG16~24, Screw torque:0.22~0.25N.m.

3. Installation ,wiring

⚠ Danger

●Before installation and wiring, The power has to be disconnected: under 22 kW,it needs to disconnect for more than 5 minutes, more than 30 kW , it needs to disconnect for more than 10 minutes, confirm the kepad and the charge indicator has been extinguished, and then use the multimeter to check the voltage which in the main circuit terminal P (+) - N (-) between the DC bus ,it has fallen to a safe range below (DC + 25V),finally we can do installation and wiring.
Otherwise there is risk of electric shock.

(1)The installation sequence of HC-PG-LD1 card is shown in the figure below.

(2)Use M3 screw which is kind of self-climbing with gasket to lock HC-PG-LD1 card.
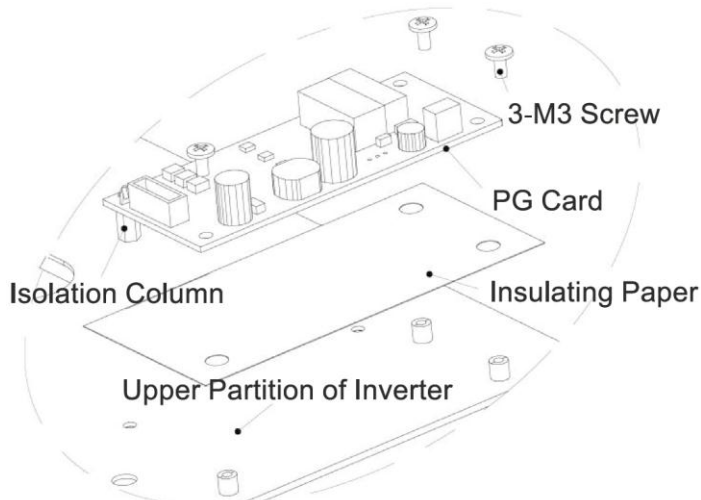
4. Applications

4-1 Drive the motor with encoder to control high precision speed

After installed on the motor encoder, can achieve closed-loop vector control. Frequency converter can realize high precision, high response speed control.

4-2 Control performance

The table below for the performance of vector control with velocity feedback

Item		Performance	Remark
Control performance	Max.output Hz	25~200Hz (More than 200Hz, the OS alarm will be happened)	Recommended encoder to use: 1024 P/R or higher.
	Speed control range	Min. speed: basic frequency =1:1500 (4 pole motor：1~1500r/min)	
	Speed control accuracy	Analog range : ≤±0.2% Max. frequency (15~35℃) Digital range: ≤±0.01% Max. frequency (-10~50℃)	

4-3 Wiring figure

The image below for vector control wiring figure with velocity feedback.
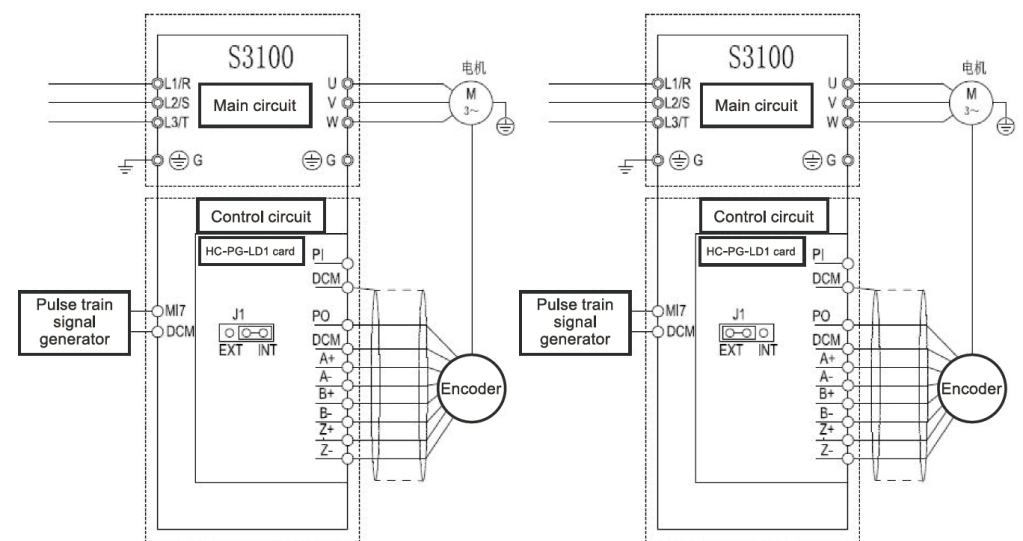
Used the inverter internal power wiring diagram
(J1 jumper in the INT position)

Used the inverter external power wiring diagram
(J1 jumper in the EXT position)

Remark：

(1)The frequency instructions will be given by MI7 pulse train signal.

(2)The signal lines is susceptible by external noise, so for signal lines, please use the shielded wire, and wiring as short as possible (below 20m). the shielding layer of shielding wire is recommended to disconnect on PG side (encoder) , make it as one wire to connect DCM on HC-PG-LD1 card .