HBS57 Closed-Loop Driver User Manual

1 Product features:

A step motor with closed-loop control, compatible with 57,60, and 86 flanges.
Voltage input range: 24~50 VDC
Subrange: 200 to 51200 ppm
Signal input: differential/monopole, pulse/direction, compatible with 5~24V signal levels
Optical isolation signal input, strong anti-interference capability
Pulse response frequency: 200KHz
Closed-loop vector control ensures high-speed, high-torque motor output while preventing step loss.
Variable current control automatically outputs matching current based on load and speed, significantly reducing motor heat generation.
Ultra-low vibration noise
It features protection functions including overvoltage, overcurrent, and tracking error exceedance.

II. Electrical Specifications

1. Interface definition

2. Environmental indicators

parameter	HBS57			
	least value	representative value	crest value	unit
maximum peak current	-	-	5.6	A
Input power supply voltage	18	36	70	VDC
logic input current	7	10	16	MA
impulse frequency	-	200	-	KHZ
insulation resistance	500			MΩ

cooling-down method	natural cooling or forced cooling	
service environment	occasion	Avoid dust, oil mist, and corrosive gases
	storage temperature	-20%~+80℃
	Maximum ambient temperature	70℃

	ambient humidity	<80% RH, no condensation or frost
vibrate	-	5.9m/s²,Max
weight	-	0.58kg

3. Motor and power input ports

Terminal number	symbol	name	explain
1	A +	Phase A motor winding +	If the motor's initial direction is opposite to the required direction, set SW5.
2	A -	A-phase motor winding-	If the motor's initial direction is opposite to the required direction, set SW5.
3	B +	Phase B motor winding +	If the motor's initial direction is opposite to the required direction, set SW5.
4	B -	Phase B motor winding	If the motor's initial direction is opposite to the required direction, set SW5.
5	VDC	Input DC power supply	18V~ 50VDC
6	GND	negative terminal of power supply	negative terminal of power supply

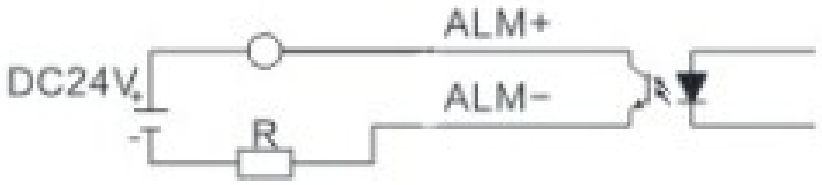
4. Encoder signal wiring port

Terminal number	symbol	name	explain
1	EB +	Positive input for the B-phase of the motor encoder	
2	EB -	Negative input for the B-phase of the motor encoder	
3	EA +	Positive input for the A-phase of the motor encoder	
4	EA -	Negative input to the A-phase of the motor encoder	
5	VCC	Encoder power supply	+5V internal output
6	EGND	Encoder power ground	0V internal output

5. Control signal port

name	explain
PUL +	Pulse input signal: The pulse is valid along the adjustable edge, with the default rising edge. To ensure reliable response to pulse signals, the pulse width should be greater than 1.2μs. Compatible with 5~24VDC levels.
PUL -	
DIR +	Directional input signal: For high/low level signals, the direction signal must precede the pulse signal by at least 5μs to ensure reliable motor commutation. The system supports 5~24VDC level compatibility.
DIR -	
ENA +	The enable control signal, which determines whether the driver output is enabled or disabled. When ENA is low (or the internal optocoupler is on), the driver cuts off the

ENA -	current to each motor phase, leaving the motor in a free state and unresponsive to input signal pulses. Leave the enable signal terminal unconnected when this function is not required. 5~24VDC level compatibility.
ALM +	Fault signal output, collector open circuit
ALM -	



Schematic diagram of the output wiring for alarm activation

6. Dial code settings;

The HBS57 driver uses a six-bit DIP switch to set the subdivision and motor rotation direction, as detailed below.

Subsetting

Steps/Revolutions	SW1	SW2	SW3	SW4
Default	on	on	on	on
400	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
51200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
3600	off	off	off	off

SW5: Motor DIR sets the running direction, where off=CC (clockwise, positive direction) and on=CW (counterclockwise, reverse direction).

SW6: off; standard mode on; start acceleration assist (not applicable to arc interpolation signals)

SW7	SW8	Motor
on	on	42
off	on	57
on	off	60
off	off	57 open loop current 4.0A

VDC: 20V-50V (DC voltage)