

# KESKİNLER ELEKTRONİK

**HSD** Hybrid Step Servo Motor Driver  
**HSD86**  
 MicroSteps Setting:400~51200 AC: 20~80V DC:30~110V

**Products Image**

**JK-HSD86 Hybrid Servo Driver**

Motor	SW7	SW8
JK60-3/4N.m	on	on
JK66-4.5N.m	off	on
JK86-8.5N.m	on	off
JK86-12.5N.m	off	off

VAC: 20V~80V OR VDC: 30~110V

SW5: Motor DIR, off=CCW, on=CW  
 SW6: Mode Sel, off=FOC, on=PM

High Voltage: AC  
 Encoder: A+, B+, ZC  
 Signal: ALM+, P-END, ENA+  
 Control Signal: PUL+, DIR, ENA+, PUL-, DIR-, ENA-, P-END, ALM-

**Overview**

- Adopt the latest DSP digital processing chip
- Advanced variable current frequency conversion control algorithm technology
- Compact, compact and space saving
- Impulse response frequency up to 500KHz
- Better vibration and low heat technology
- With overcurrent, overvoltage, undervoltage protection
- Subdivision Settings (within 400~ 51200)

**Features**

Input voltage	20~80VAC/30~110VDC
Output current	0.5~13A
Pulse frequency	0~500KHz
MicroSteps	16 MicroSteps
Signal current	7~20mA
Using environment	-5 ~ 45 °C, avoid dust and corrosive gas
Storage environment	-20~+65°C, avoid direct sunlight
Heavy volume	

If the power input is DC voltage, the input range is 24~110V.

**LED status indication**

Number of flashes	Red indicator flashing wave pattern	Fault description
1		Driver overcurrent
2		Driver internal voltage reference error
3		Error uploading drive parameters
4		Driver supply voltage exceeds maximum
5		Motor phase missing alarm
6		Motor phase missing alarm

**Encoder signal**

Symbol	Name	Wiring color
EB+	Encoder signal B input positive	/
EB-	Encoder signal B input negative	/
EA+	Encoder signal Ainput positive	/
EA-	Encoder signal Ainput negative	/
VCC	Encoder power	/
EGND	Encoder power ground	/

**Motor and power**

Symbol	Name	Remark
A+	Phase A+	/
A-	Phase A-	/
B+	Phase B+	/
B-	Phase B-	/
AC	AC power input	20~80V
AC	AC power input	20~80V

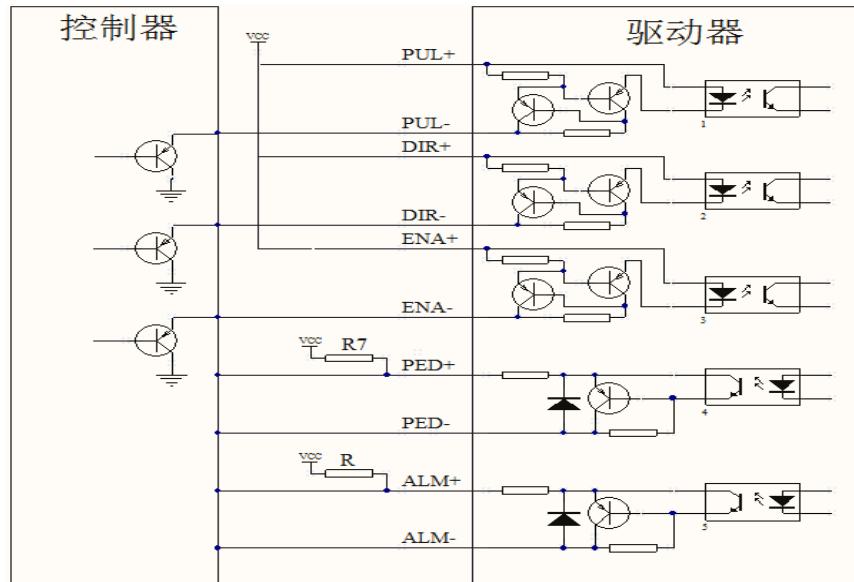
**Control Signal**

Symbol	Name	Remark
PUL+	Pulse signal +	Compatible with 5/12/24V
PUL-	Pulse signal -	
DIR+	Direction signal+	Compatible with 5/12/24V
DIR-	Direction signal-	
ENA+	Enable signal +	Only connected when used
ENA-	Enable signal -	Only connected when used

**ALM Signal**

Symbol	Name	Remark
ALM+	Positive alarm signal	Only connected when used
ALM-	Negative alarm signal	Only connected when used
PEND+	Positive signal	Only connected when used
PEND-	Negative signal in place	Only connected when used

## Control Signal Connection



Remarks: VCC compatible 5/12/24V

## Control signal mode control

Pulse Trigger Edge Selection: The PWM rising edge or falling edge trigger is enabled by the PC software.

Single and double pulse selection: It is effective to set single pulse or double pulse by PC software.

Direction selection: Set the initial running direction of the motor through the PC software.

## Subdivision accuracy

Pulse/rew	SW1	SW2	SW3	SW4
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
40000	off	off	off	off

## DIP switch setting

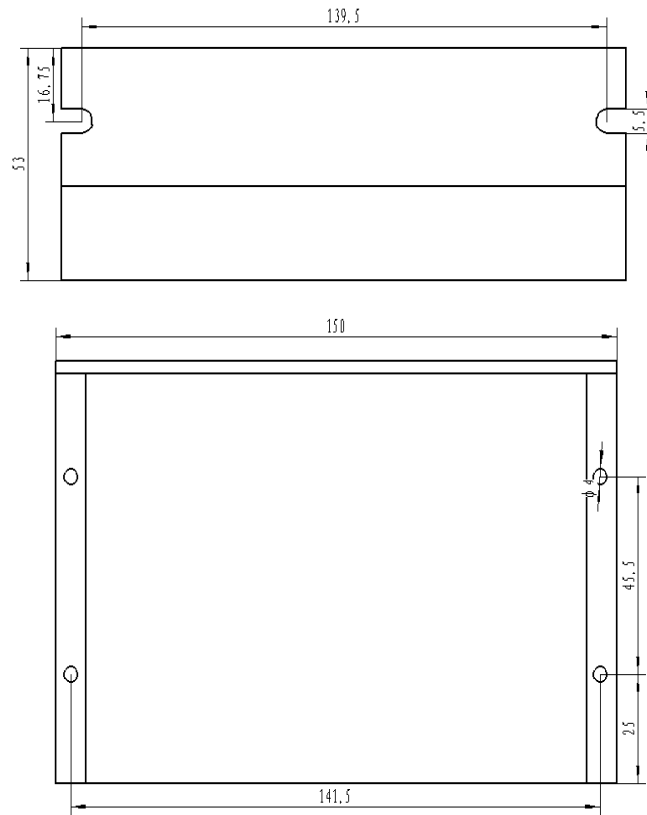
SW5 sets the motor direction. When it is OFF, the motor rotates counterclockwise to CCW. When it is ON, the motor rotates clockwise to CW.

SW6 function mode selection. When OFF, the drive is space vector control mode is FOC. When it is on, the drive point movement mode is PM.

## Motor selection

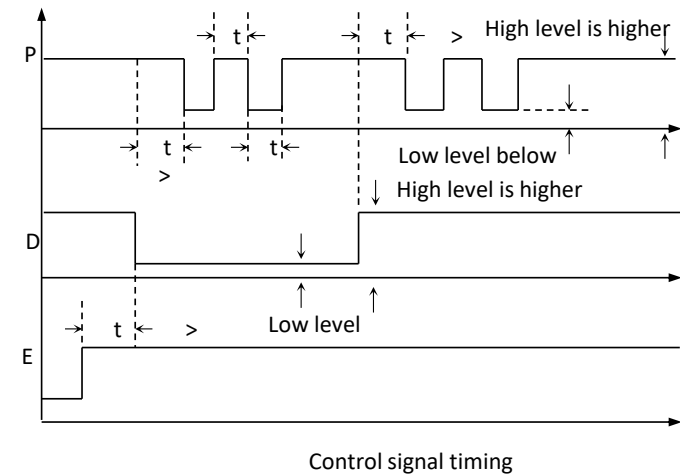
Motor	SW7	SW8
JK60-3/4N.m	ON	ON
JK86-4.5N.m	OFF	ON
JK86-8.5N.m	ON	OFF
JK86-12.5N.m	OFF	OFF

Drive Dimensional Chart(mm)



The reliable working environment temperature of the driver is usually within  $-5^{\circ}\text{C} \sim 45^{\circ}\text{C}$ , the operating temperature of the driver is  $65^{\circ}\text{C}$ , the motor working temperature is within  $70^{\circ}\text{C}$ , if necessary, install a fan near the drive to force heat dissipation to ensure reliable operation of the drive Working within the temperature range.

Control signal sequence diagram



**Remark:**

T1: ENA (enable signal) should be determined to be high by a DIR of at least  $5\ \mu\text{s}$ . Under normal circumstances, it is recommended to hang up.

T2: DIR determines its state high or low at least  $1\ \mu\text{s}$  along the PUL fall.

T3: pulse width is at least not less than  $1.5\ \mu\text{s}$

T4: low level width is not less than  $1.5\ \mu\text{s}$

**JK-HSD86 Hybrid Servo Driver**

VAC: 20V~80V OR VDC: 30~110V

Pulse/rev	SW1	SW2	SW3	SW4
100	on	on	on	on
200	on	on	off	on
400	on	off	on	on
800	on	off	off	on
1600	on	off	off	off
3200	off	on	on	on
6400	off	on	off	on
12800	off	on	off	off
25600	off	off	on	on
51200	off	off	on	off
102400	off	off	off	on
204800	off	off	off	off
409600	off	off	off	off

Motor Selection

Motor	SW7	SW8
JK50-1.5A	on	on
JK50-2.5A	on	off
JK50-3.5A	on	off
JK50-5.5A	on	off
JK50-7.5A	off	on
JK50-10A	off	off

SW5: Motor DIR, off=CCW, on=CW  
SW6: Mode Sel, off=FOC, on=PM

High Voltage: A+, A-, B+, B-, C-, AC

Encoder: EB+, EB-, EA+, EA-, VCC, E5GND

Signal: Pwr+, Pwr-, ALM+, ALM-

Control Signal: PUL+, PUL-, DIR+, DIR-, ENA+, ENA-

Remarks: For specific A+, A-, B+, B- line sequence colors, please refer to the motor manual used.

## Frequently Questions And Troubleshooting

- 1. The motor does not turn:**
  - The pulse signal is weak, adjust the signal current to 7-16mA
  - Check and connect the motor line
  - Check the supply voltage
  - Choose the correct subdivision gear
  - Restart the drive
  - Pull high or dangling enable signal
  - Check the supply voltage
- 2. Motor position is not allowed:**
  - Eliminate signal interference
  - Reliable grounding
  - Check and connect the motor line
  - Set the correct segmentation
- 3. The motor is blocked when it accelerates:**
  - Lengthen acceleration time
  - Choose a motor with a large torque
  - Increase the proper working voltage

## Protective function

- 1) Overvoltage protection**  
When the input voltage is higher than 90VAC, the drive will stop working. At this point, the fault must be discharged and the power-on reset should be resumed.
- 2) Undervoltage protection**  
When the input voltage is lower than 15VAC, the drive will stop working. At this point, the fault must be discharged and the power-on reset should be resumed.
- 3) Overcurrent protection**  
When an overcurrent occurs, the drive will stop working. At this point, the fault must be discharged and the power-on reset
- 4) Tracking error tolerance**  
When the tracking error is out of tolerance, the drive stops working. At this point, the fault must be discharged and the power-on reset should be resumed.