



**Model:** Q3HB220M

**Category:** stepper motor drives-->3-phase hybrid stepper motor drives

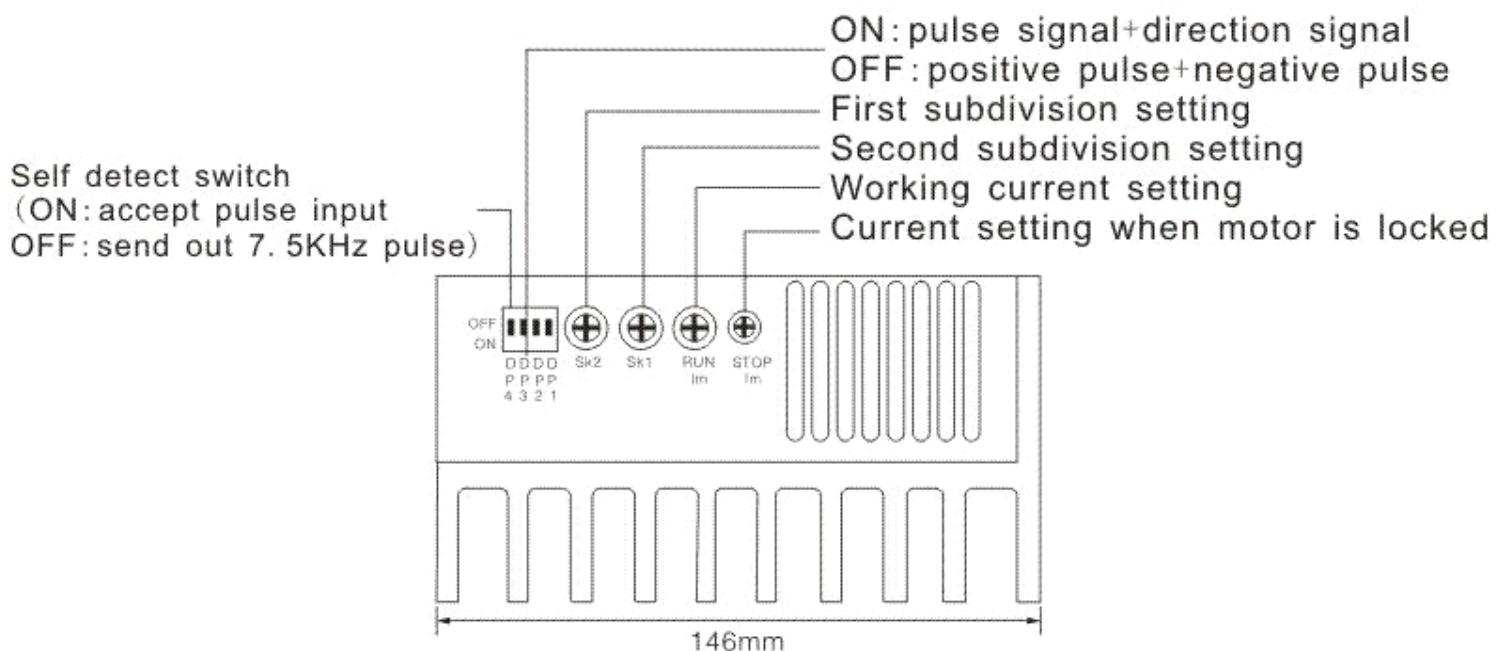
**Item:** Q3HB220M

Q3HB220M is a constant angle and constant torque stepper motor drive. The driven voltage range from AC110V to 220V. It can match 3-phase hybrid stepper motors whose rated current is under 7.0A and shaft diameter range from 86mm to 130mm. Owe to bipolar constant chopping circuit, it can make motors low noise and operated smoothly when low speed; the torque is much greater than 2-phase and 5-phase stepper motor when high speed. It is widely used in small-sized numerical control device such as medical machine, robot, instrumentation, curving machine, laser labeling machine, inner laser curving machine.

## Feature

- High performance, low price
- 16 channels constant angle and constant torque, the highest subdivision is 60000s/r
- Highest response frequency: 200Kpps
- The motor phase current is reduced to setting value 100ms after receiving the last pulse edge
- Bipolar constant current chopping circuit
- Opto-isolated input/output
- Driven current is adjustable in 16 channels from 0.6A/phase to 7.0A/phase
- Single power supply, voltage arrange from AC110V to220V
- Phase remembering function (The driver remembers motor's phase when there's no input pulse is received for 5s and it recovers the motor's phase when the power on or signal MF is inactive)

## Parameter switches



## Current setting

1. STOP/Im is the rotary switch that can set output current of holding motor status as 20%-80% of normal output current (increase in CW, decrease in CCW).
2. RUN/Im is the rotary switch for adjustment of the motor current.

R-1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Im (A)	0.6	1.1	1.5	2.0	2.5	2.9	3.2	3.6	4	4.5	5	5.5	5.8	6.3	6.6	7.0

## Subdivision setting

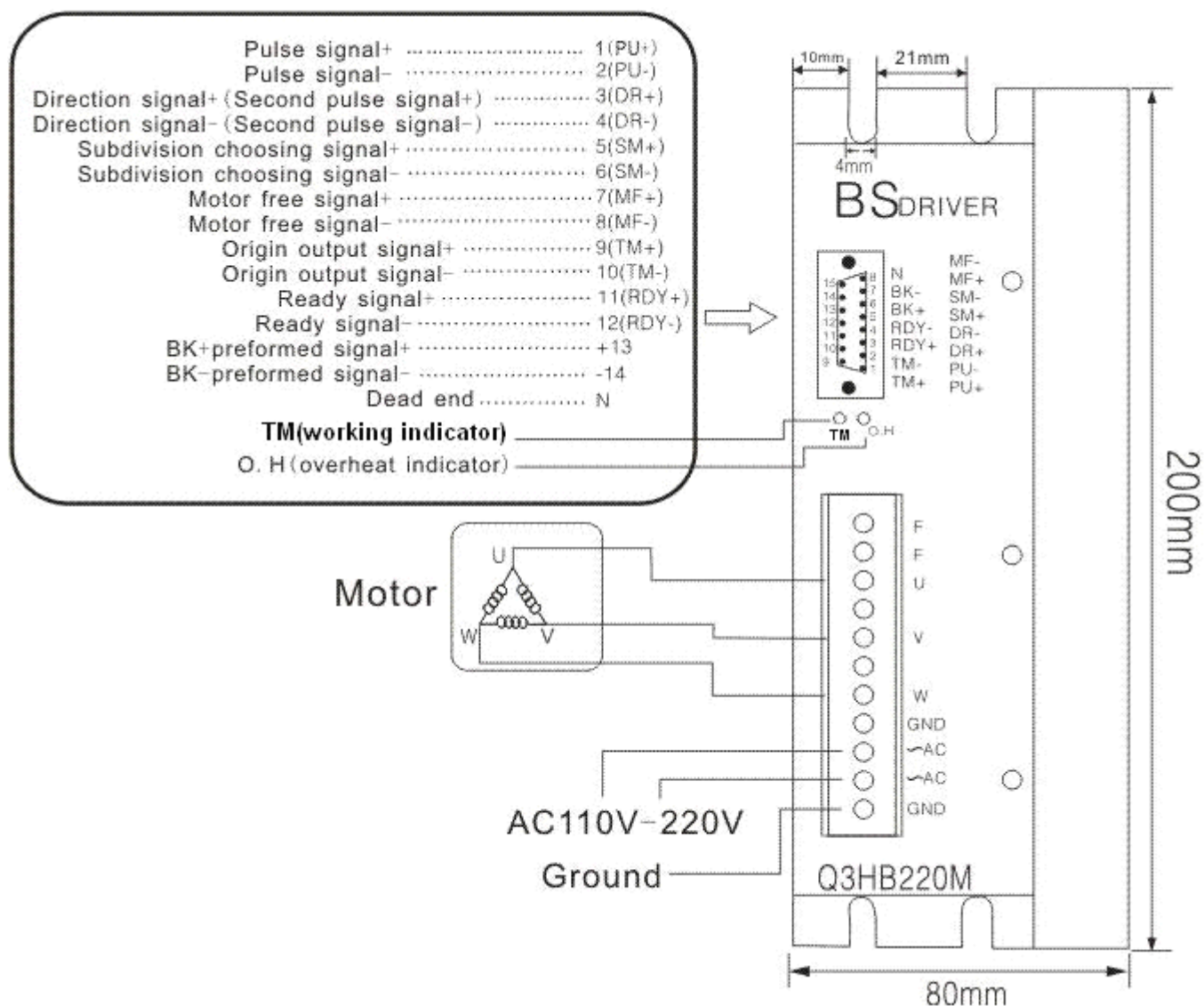
Q3HB220M drive has two groups of subdivision, each group has 16 channels set by switch SK1/SK2.

SK1	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
s/r	400	500	600	800	1000	1200	2000	3000	4000	5000	6000	10000	12000	20000	30000	60000

SK2 is the second group. The subdivision setting of SK2 is the same as SK1.

Choose SK1 group when subdivision choosing signal SM is low voltage and SK2 at high voltage.

## Wiring example



## Caution

1. Please don't reverse the power supply, supply voltage shouldn't exceed AC220V.
2. Input control signal is 5V, current-limiting resistance should be connected when over 5V.
3. Alarm indicator lights and the drive shuts off if the drive temperature is over 70°C. It doesn't work until the temperature falls to 50°C.  
The heat sink is needed when overheat occurs.
4. Alarm indicator lights when overcurrent (short of load) occurs. Please check motor's connection and other shorts and turn the power supply on after removing the trouble.
5. Alarm indicator lights when undervoltage (the voltage is less than AC110V) occurs.

## Parameter switch function

DP3	OFF, double pulse: PU is positive pulse signal, DR is negative pulse signal
	ON, single pulse: PU is pulse signal, DR is direction signal
DP4	Self detect switch (OFF: accept pulse input, ON: send out 7.5KHz pulse. The subdivision should be between 2000-10000 s/r)

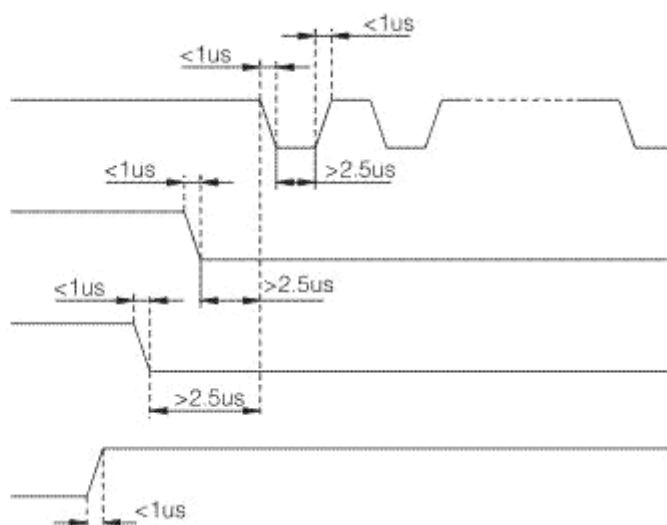
## Input signal oscillogram

PU pulse signal

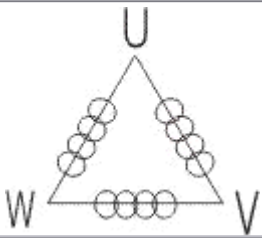
DR direction signal

SM subdivision choosing signal

MF motor free signal



## Terminal function

Mark	Function	Specification
MF+	Positive of opto-isolated	Connected to +5V power supply. Driven voltage range from +5V to +24V. Current-limiting resistance is needed when over 5V.
MF-	Motor free signal	The motor current will be cut off and the drive stops working when it effects.
SM+	Positive of opto-isolated	Connected to +5V power supply. Driven voltage range from +5V to +24V. Current-limiting resistance is needed when over 5V.
SM-	Subdivision choosing signal	Choose subdivision by SK1 when low voltage and SK2 when high voltage. Input resistance is 220Ω.
DR+	Positive of opto-isolated	Connected to +5V power supply. Driven voltage range from +5V to +24V. Current-limiting resistance is needed when over 5V.
DR-	DP3=ON, DR is direction signal DP1=OFF, DR is negative pulse signal	Change the motor's direction of rotation. Input resistance is 220Ω. Low voltage 0-0.5V, high voltage 4-5V, pulse width>2.5μS
PU+	Positive of opto-isolated	Connected to +5V power supply. Driven voltage range from +5V to +24V. Current-limiting resistance is needed when over 5V.
PU-	DP3=ON, PU is pulse signal DP3=OFF, PU is positive pulse signal	With the falling edge of the signal PU, the motor executes an angular step. The input resistance is 220Ω. Low voltage 0-0.5V, high voltage 4-5V, pulse width>2.5μS.
TM+	Positive of opto-isolated origin output signal	When the motor current is on, the motor is at the origin position. Opto-isolated output (high voltage). Connect TM+ to current-limiting resistance,
TM-	Negative of opto-isolated origin output signal	TM- to ground. The maximum driven current is 50mA, the highest driven voltage is 50V.
RDY+	Positive of opto-isolated ready signal	It is active (low voltage) when the drive is ready for receiving controller's signal.
RDY-	Negative of opto-isolated ready signal	
~AC	Power supply	AC110V~220V
U	Connection	
V		
W		