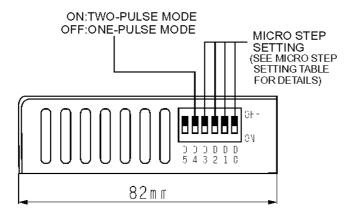
#### Q2HB44MC Q2HB44MD

Q2HB44MC (D) is constant angle constant torque microstepping drives. This type drive supplies regulated phase current for supply voltages between 12-40V. It is designed for use with the 2-phase hybrid step motor of all kinds with a 42-86mm outside diameter, 6 or 8 lead and 4A current max. It is widely used in small numerical control equipment with high resolution such as carving machine, laser labeling, laser inner carving machine etc.

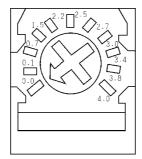
#### **Features**

- High reliability, Low price
- 12/8 channels constant angle constant torque micro step, highest micro steps: 200
- Unique control circuitry
- Highest response frequency: 200Kpps
- Winding current will be reduced by 50% when no step pulse command is received for 0.1 second.
- Bipolar constant current chopping mode
- Optically isolated signals I/O
- Driving current is continually adjustable from 0.5A/phase to 4A/phase
- Single power supply (12-40Vdc)

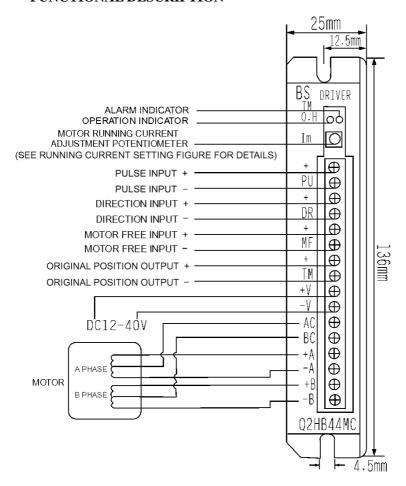
# **FUNCTION DIP SWITCHES**



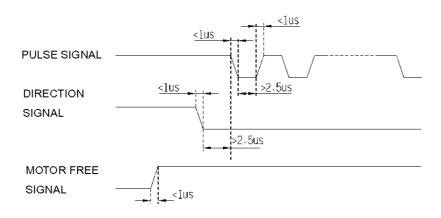
#### **RUNNING CURRENT SETTING**



#### **FUNCTIONAL DESCRIPTION**



# Input signal oscillogram



#### Note

- 1. Do not connect the power reversely, the input voltage should not over 40Vdc.
- 2. The voltage of the input control signal is 5V, a series resistance is necessary to limit the current when the voltage level is over 5V.

- 3. When the temperature of drive is over 70C the overheat indicator will light, the drive will stop working until the temperature falls down to 50C. A radiator is needed when the overheat protection occurs.
- 4. Because this type driver adopts a special control circuit, the motor must be 6 or 8 lead motor.

# Q2HB44MC micro step setting table

Micro step	1 2 4 8 16 32 64 128										
D0	ON	OFF	ON	OFF	ON	0FF	ON	0FF			
D1	ON ON OFF OFF ON ON OFF							0FF			
D2	ON ON ON OFF OFF OFF										
D3	NO USE										
D4	ON=Two-Pulse Mode: PU = CW Pulse; DR = CCW Pulse										
	OFF=One-Pulse Mode: PU = Pulse; DR = Direction										

# Q2HB44MD micro step setting table

Micro step	1	2	4	5	8	10	20	25	40	50	100	200	200	200	200	200
DO	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	0FF
D1	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	0FF
D2	ON ON ON OFF OFF OFF OFF ON ON ON OFF OFF								0FF							
D3	ON ON ON ON ON ON ON ON ON OFF OFF OFF O															
D4	ON=Two-Pulse Mode: PU = CW Pulse; DR = CCW Pulse															
υ4	OFF=One-Pulse Mode: PU = Pulse; DR = Direction															

# **Q2HB44MC** signals table

Mark	Function	Note					
symbol							
TM	Running indicator light	When the TM is enabled the green LBD will light.					
O.H	Failure indicator light	The red LBD will light when overheat protection effects.					
Im	Potentiometer for setting the winding current	Adjust the motor's phase current. Decrease with the CCW rotation,					
		increase with CW rotation <sub>o</sub>					
+	Anode of optical isolated inputs	Connected to +5V power. Driven voltage: +5V-+24V, a R is needed					
		when the voltage is over 5V, please refer to page 5 input signals for					
		details.					
PU	D4=OFF, PU: step pulse	Each negative pulse edge triggers one motor step. Input resistance is					
	D4=ON, PU: CW step pulse	220 .Requiring: low voltage level 0-0.5V, high voltage level 4-5V. pulse width >2.5 $\mu\mathrm{s}$					

Signals for details	nnected		Anode of optical isolated inputs	e of optical isolated inputs Connected to +5V power supply. Driven voltage : +5V-+24V,	a R is
DR D4=OFF, DR: step pulse  D4=ON, DR: CCW step pulse  Anode of optical isolated inputs  Fig. 1. Anode of origin's optical isolated output  Anode of origin's optical isolated output  Cathode of origin's optical isolated output  TM Cathode of origin's optical isolated output  Cathode of power  AC,BC  HA,-A  +B,-B   Lised to change the motor's running direction. Input resis Requiring: low voltage level 0-0.5V, high voltage pulse width >2.5 μ s  Requiring: low voltage level 0-0.5V, high voltage: +5V-needed when the voltage is over 5V, please refer to p signals for details.  The current of the winding is cut off. The driver stops w motor is in a free status.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage level 0-0.5V, high voltage is over 5V, please refer to p signals for details.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated output (below the first of the winding is cut off. The driver stops we have a supplied to the cut of the winding is cut off. The driver stops we have a supplied to the cu	eded wh			needed when the voltage over 5V, please refer to page 4 of	output
D4=ON, DR: CCW step pulse  Requiring: low voltage level 0-0.5V, high voltage pulse width >2.5 µ s  Connected to +5V power supply. Driven voltage: +5V-needed when the voltage is over 5V, please refer to p signals for details.  MF Motor free signal The current of the winding is cut off. The driver stops we motor is in a free status.  + Anode of origin's optical isolated output Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage let) to the ground of outputs, maximum driving current 50 to voltage 50V  +V Anode of power  -V Cathode of power  AC,BC Motor's connection  BC Motor's connection  BC Motor's connection  Anode of power  BC Motor's connection	gnals for			signals for details	
pulse width >2.5 μ s  Connected to +5V power supply. Driven voltage: +5V-4 needed when the voltage is over 5V, please refer to p signals for details.  MF Motor free signal The current of the winding is cut off. The driver stops w motor is in a free status.  + Anode of origin's optical isolated output Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left) to the ground of outputs, maximum driving current 50 to voltage 50V  +V Anode of power  -V Cathode of power  AC,BC Motor's connection  DC12-40V  -BC  Motor's connection	sed to ch		OFF, DR: step pulse	FF, DR: step pulse Used to change the motor's running direction. Input resistance	is 430
Anode of optical isolated inputs  Connected to +5V power supply. Driven voltage: +5V-4 needed when the voltage is over 5V, please refer to p signals for details.  MF  Motor free signal  The current of the winding is cut off. The driver stops w motor is in a free status.  + Anode of origin's optical isolated output  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left)  TM  Cathode of origin's optical isolated output  Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V  Anode of power  -V  Cathode of power  AC,BC  +A,-A  +B,-B  Motor's connection  Connected to +5V power supply. Driven voltage: +5V-4 needed when the voltage is over 5V, please refer to p signals for details.  Connect + to the winding is cut off. The driver stops w motor is in a free status.  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left to the ground of outputs, maximum driving current 50 voltage 50V	.Requiri		=ON, DR: CCW step pulse	N, DR: CCW step pulse .Requiring: low voltage level 0-0.5V, high voltage level	4-5V.
needed when the voltage is over 5V, please refer to p signals for details.  MF Motor free signal The current of the winding is cut off. The driver stops we motor is in a free status.  + Anode of origin's optical isolated output Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left).  TM Cathode of origin's optical isolated output Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power DC12-40V  -V Cathode of power  AC,BC Motor's connection  BC Motor's connection  BC M M M M M M M M M M M M M M M M M M M	lse widtl			pulse width $>2.5 \mu s$	
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MF Motor free signal  The current of the winding is cut off. The driver stops we motor is in a free status.  + Anode of origin's optical isolated output  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left)  TM Cathode of origin's optical isolated output  Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power  AC,BC HA,-A HB,-B	eded wł			needed when the voltage is over 5V, please refer to page 5	input
motor is in a free status.  + Anode of origin's optical isolated output  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage left)  TM Cathode of origin's optical isolated output  Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power  -V Cathode of power  AC,BC Motor's connection  BC Motor's connection  BC M Motor's connection	gnals for			signals for details.	
+ Anode of origin's optical isolated output  Enabled when the energized motor's windings are or (B,-A energized); optical isolated outputs (high voltage letter)  TM Cathode of origin's optical isolated output  Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power  -V Cathode of power  AC,BC HA,-A +B,-B	e curren		Motor free signal	r free signal The current of the winding is cut off. The driver stops working	g , the
TM Cathode of origin's optical isolated output  Connect + to the resistance to limit the current of output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power  -V Cathode of power  AC,BC HA,-A +B,-B	otor is in			motor is in a free status.	
TM Cathode of origin's optical isolated output to the ground of outputs, maximum driving current 50 voltage 50V  +V Anode of power  -V Cathode of power  AC,BC +A,-A +B,-B	abled w	put	anode of origin's optical isolated output	e of origin's optical isolated output	origin
to the ground of outputs, maximum driving current 50n voltage 50V  +V Anode of power  -V Cathode of power  AC,BC Motor's connection  -B C M M  -B BC M  -B B	,-A ener			(B,-A energized); optical isolated outputs (high voltage level).	
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AC,BC Motor's connection  +A,-A  +B,-B	C12-40V		anode of power	e of power DC12-40V	
+A,-A +B,-B			Cathode of power	ode of power	
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