

MDK-MM32SPIN060G

User Guide

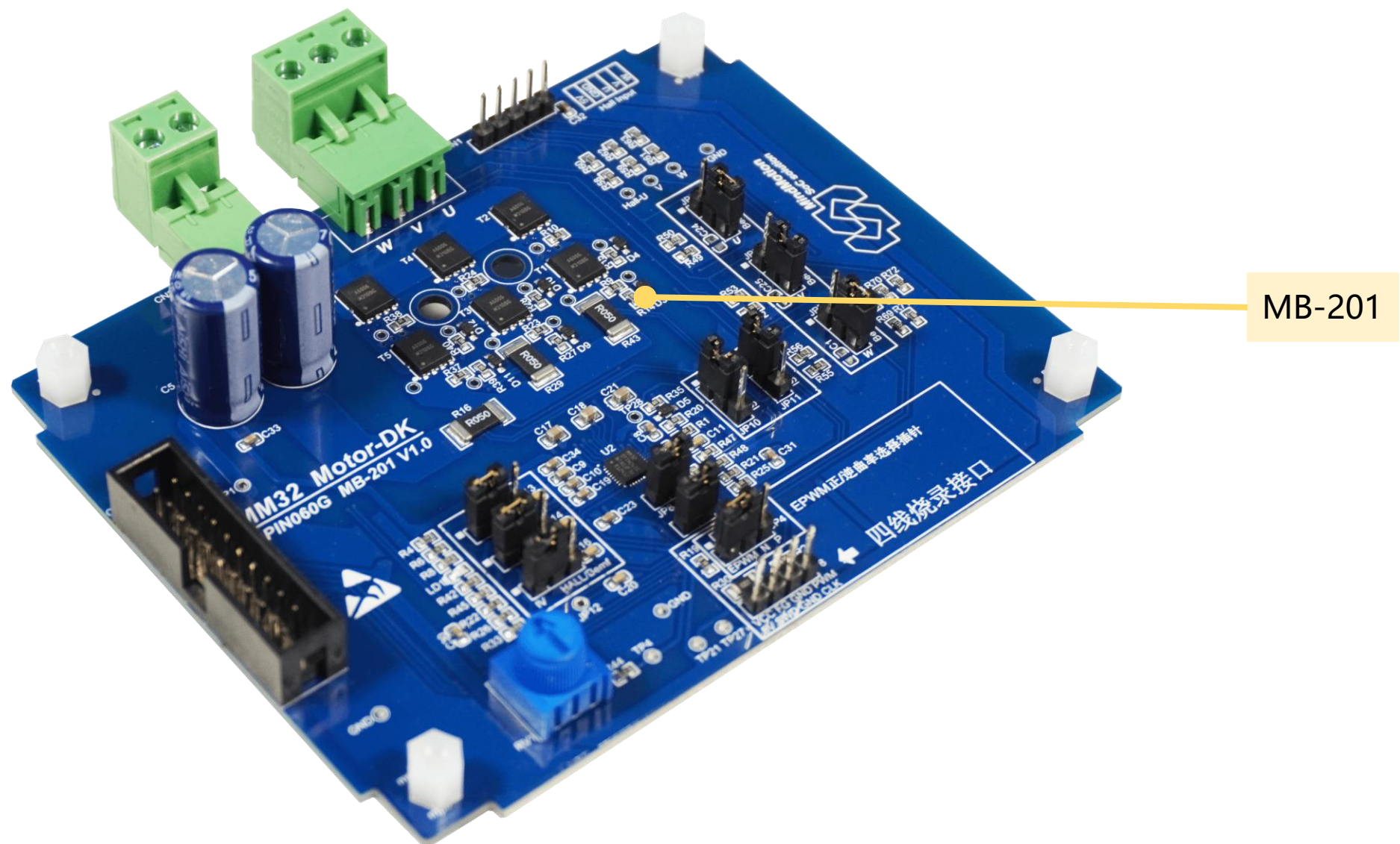
Rev.A

V0.1_2024/06/16

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MM32 MDK Introduction(1)



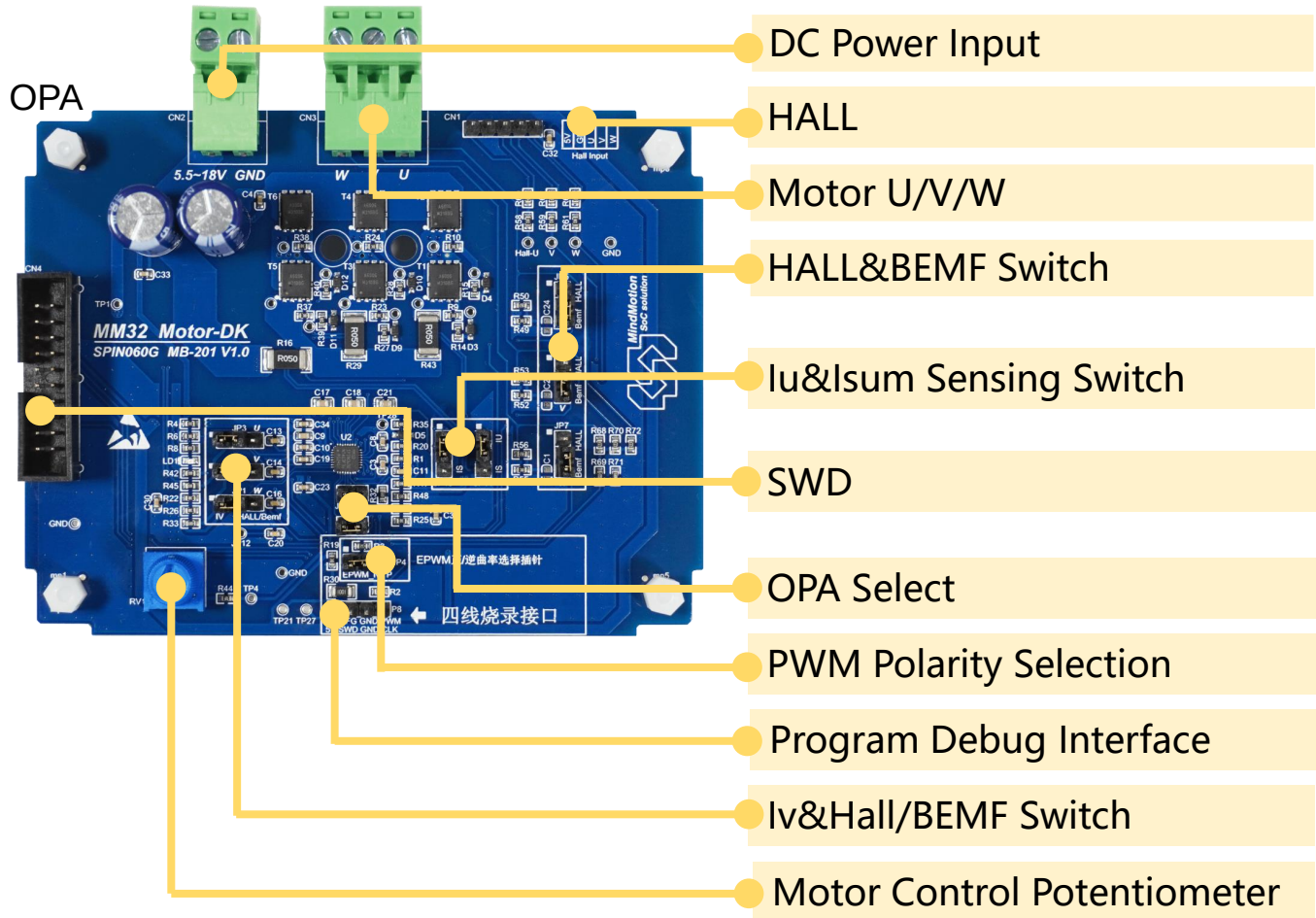
MM32 MDK Introduction(2)

This is a low-voltage motor drive development board, which supports sensor/sensorless square wave driving using the MM32SPIN060G MCU.

- ❑ VDC input: 5.5V~18V(recommended value 12V)
- ❑ MCU built-in 100V 6N pre-driver, 5.0V LDO(50mA) and two OPA
- ❑ 60V40A NMOS on-board
- ❑ Support HALL(capture) and BEMF(ADC) detect switching
- ❑ Support OCP using internal COMP
- ❑ Support motor start&stop control using potentiometer
- ❑ Support program debug using VIN/FG/PWM/GND

note:

- The power output depends on the ambient and MOSFET temperature rise
- All hardware such as the jump caps can only be operated under power-off state



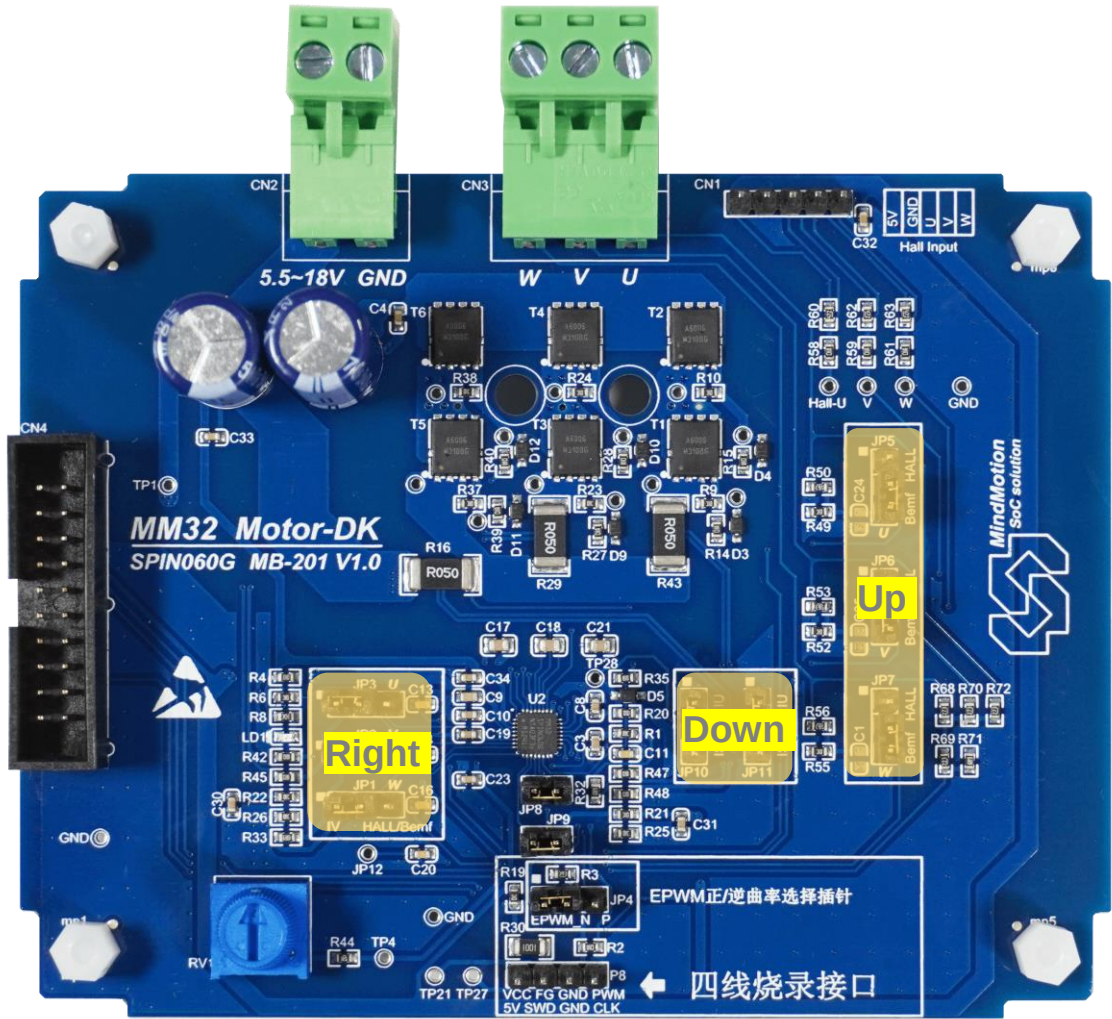
Program debug interface using VIN/FG/PWM/GND

We provide a unique interface

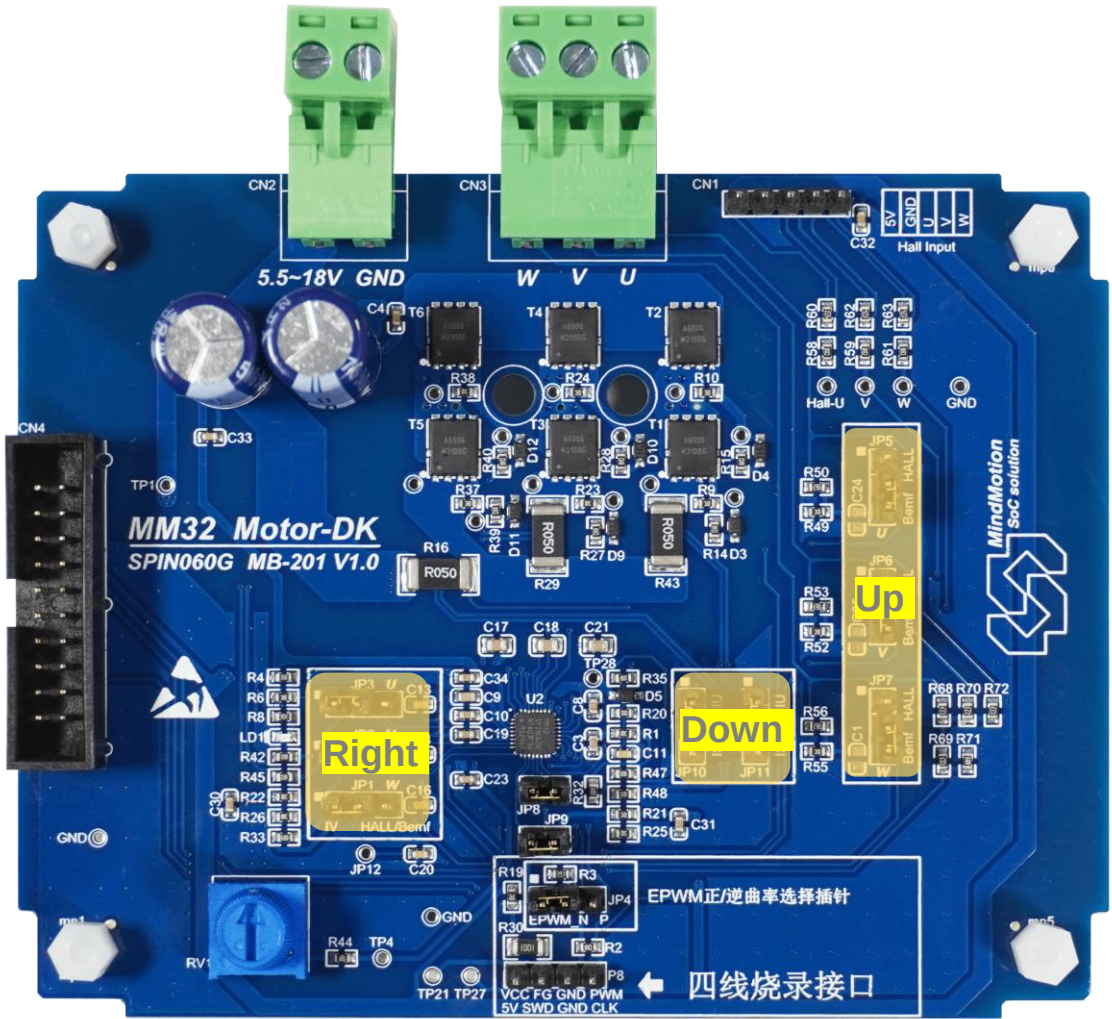
that allows customers to use the VIN/FG/PWM/GND interface for program download and debug, which greatly facilitates software upgrades after mass production.



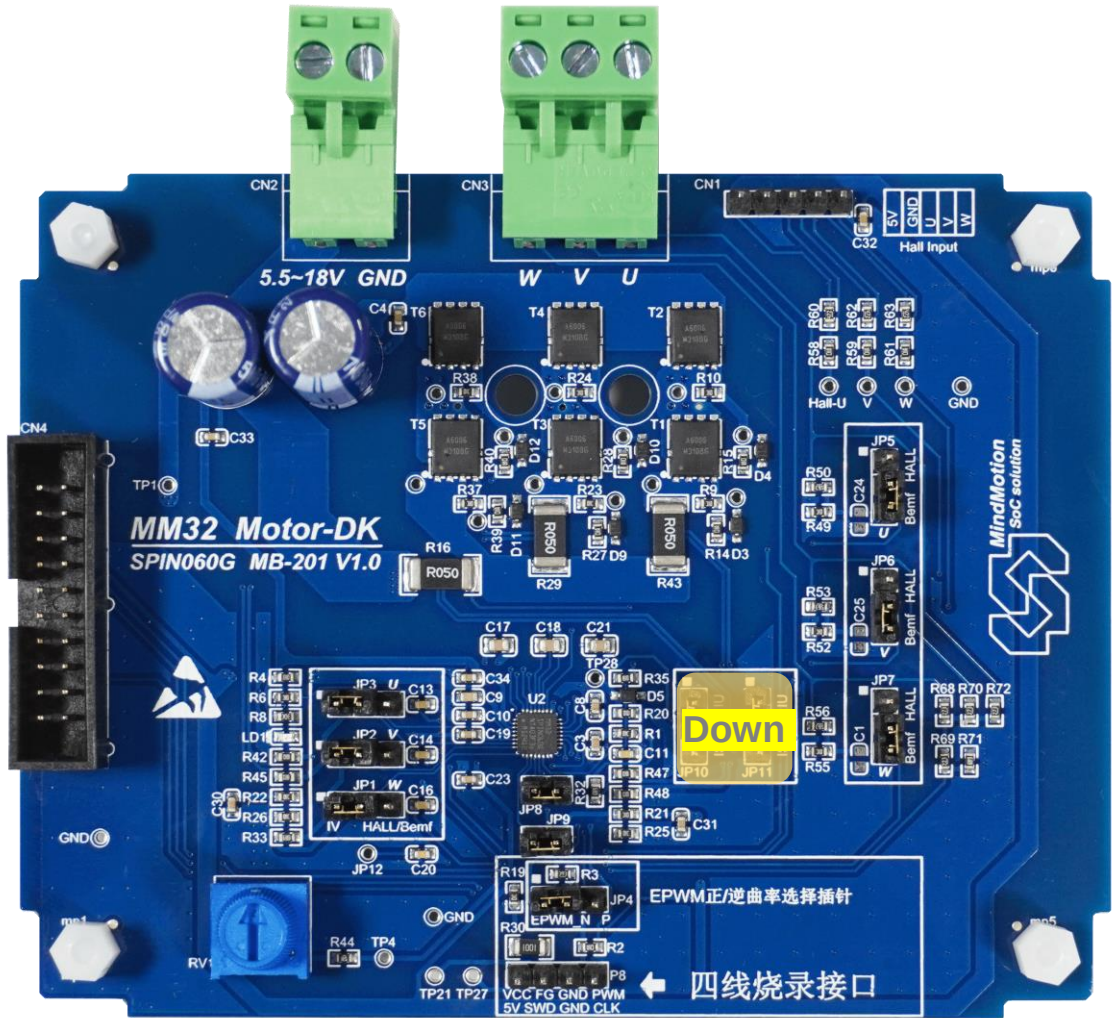
Typical Application(1) : HALL FOC - 1R



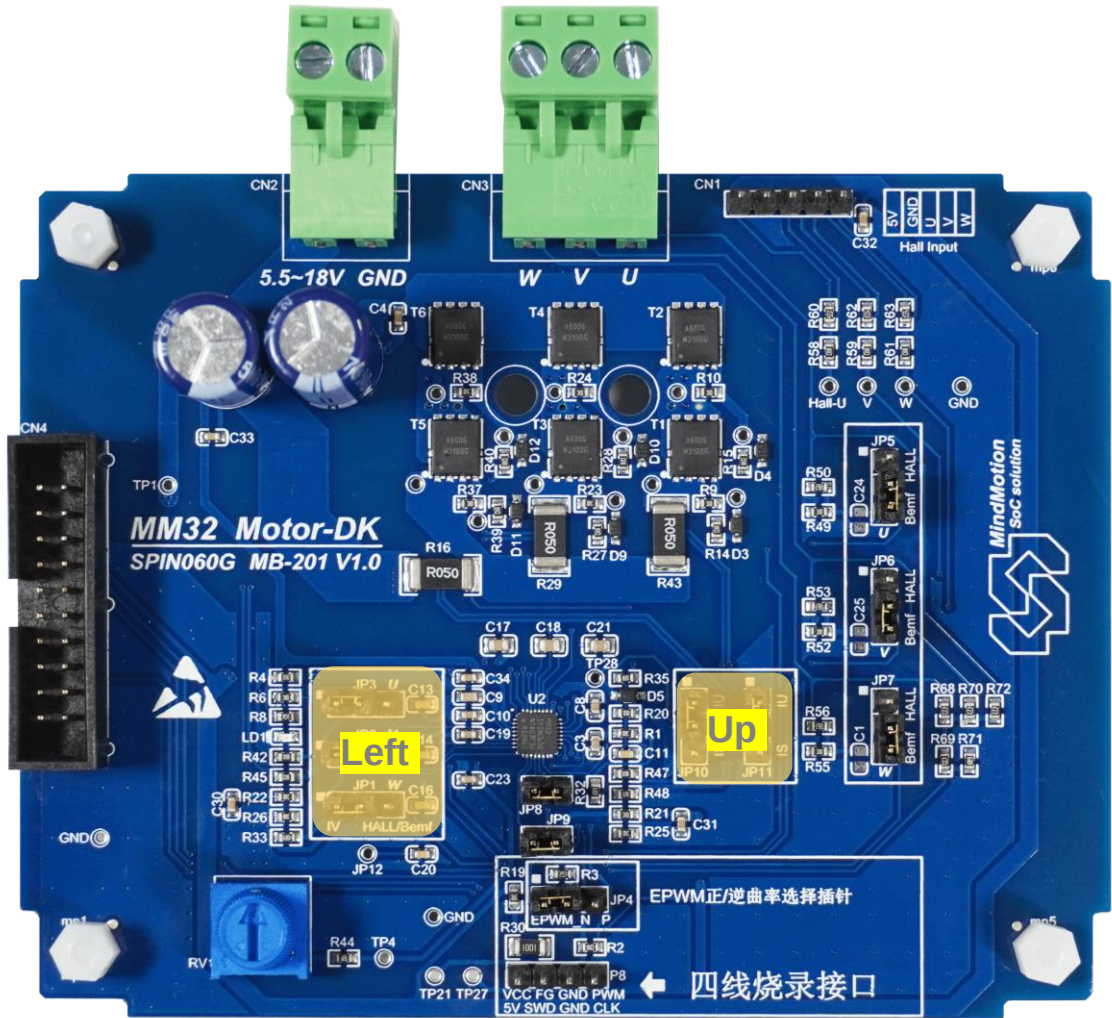
Typical Application(2) : HALL Square Wave



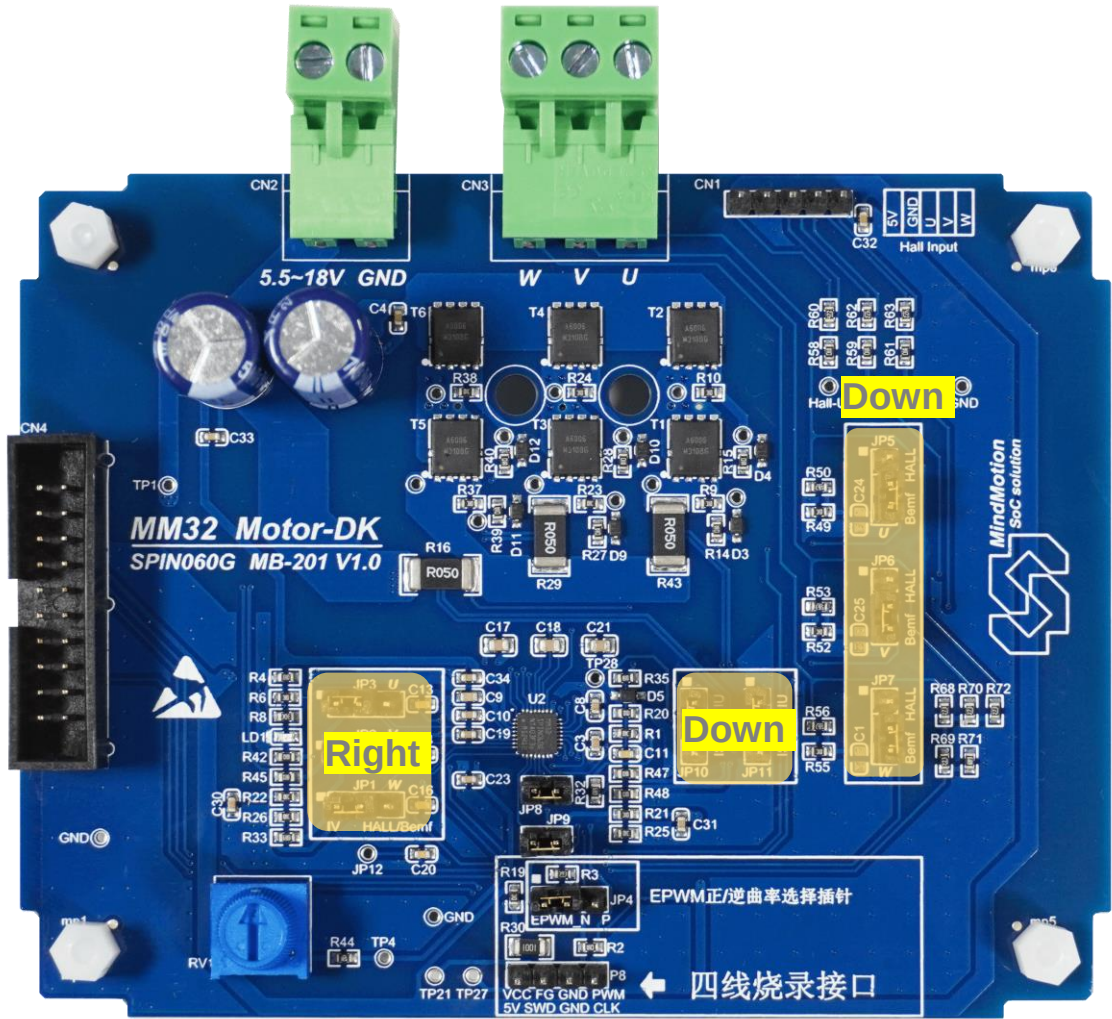
Typical Application(3) : Sensorless FOC - 1R



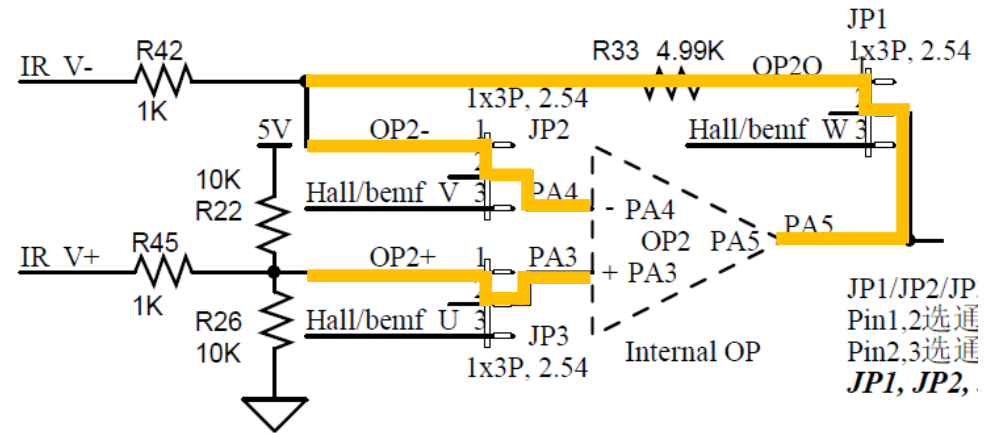
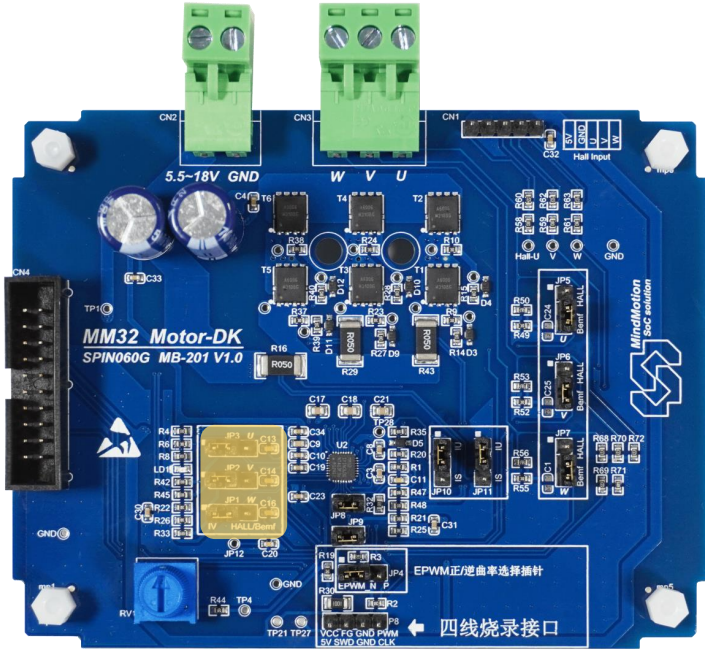
Typical Application(4) : Sensorless FOC - 2R



Typical Application(5) : Sensorless Square Wave - BEMF(ADC)



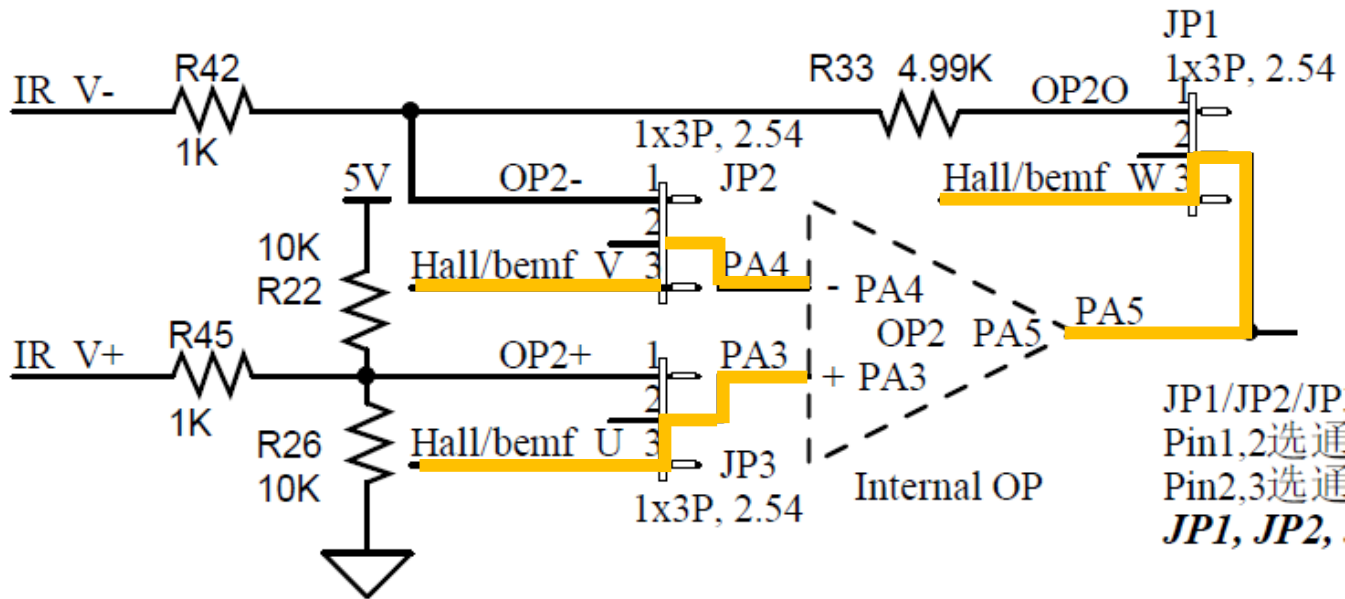
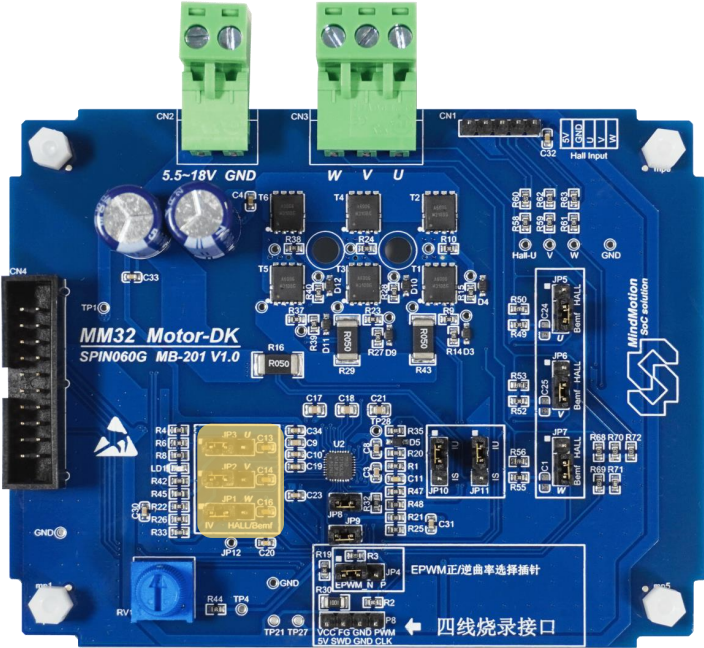
Hardware Settings(1): Iv & Hall/BEMF Switch



Connect the Pin1-2 of JP1/2/3

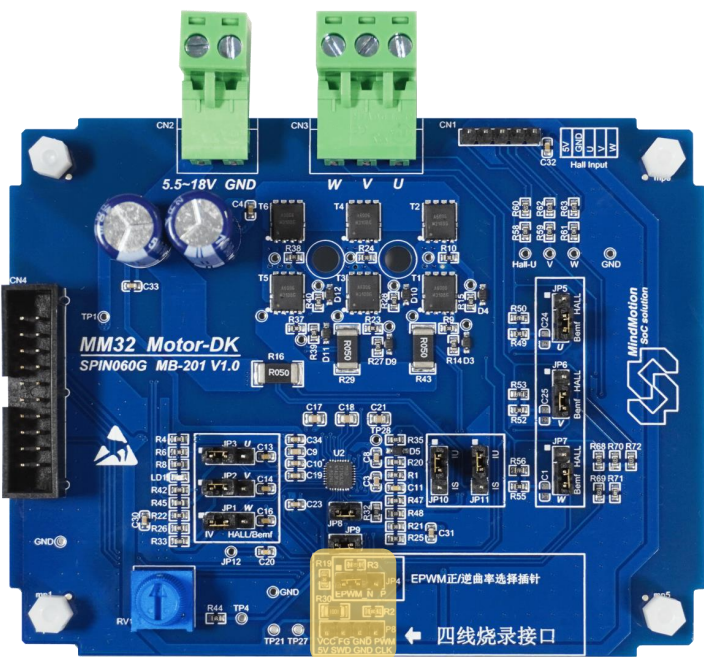
Select Iv Sample using the internal OPA2

Hardware Settings(1): Iv & Hall/BEMF Switch

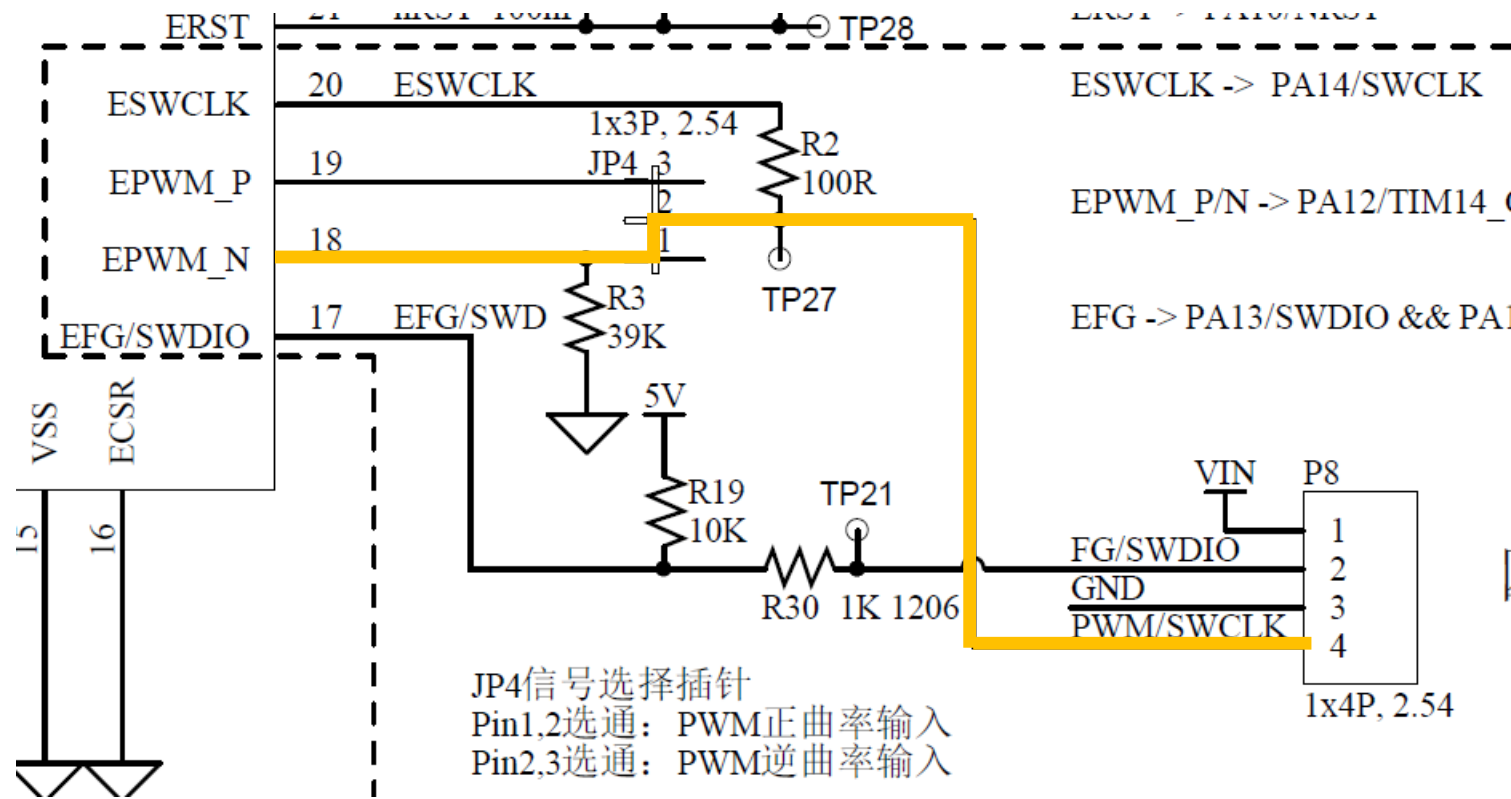


Connect the Pin2-3 of JP1/2/3
Select Hall/BEMF

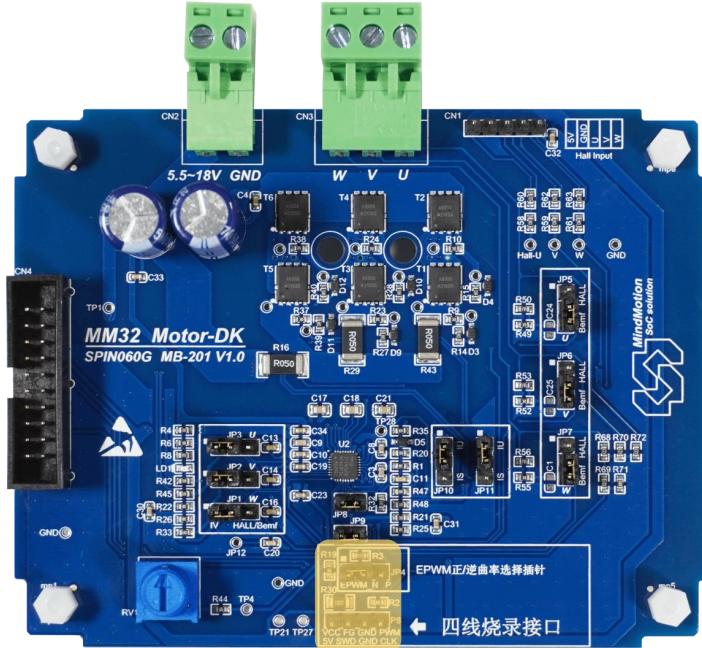
Hardware Settings(2): PWM input Polarity Select



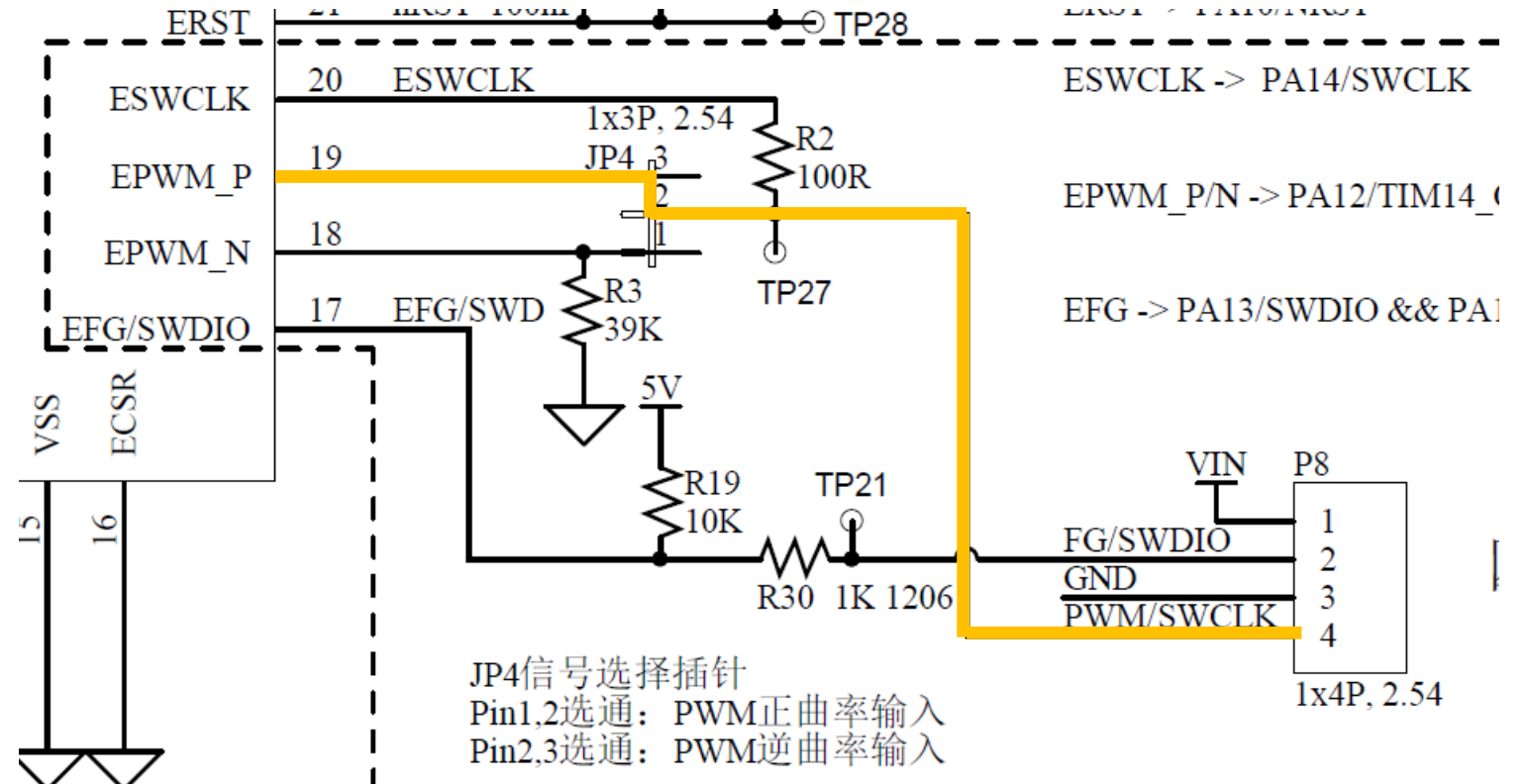
Connect the Pin1-2 of JP4
Select PWM input Polarity Positive



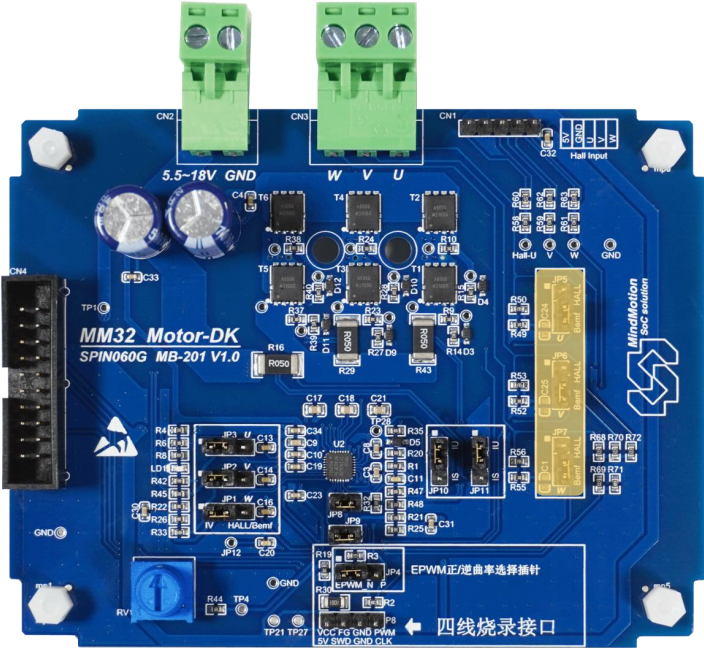
Hardware Settings(2): PWM input Polarity Select



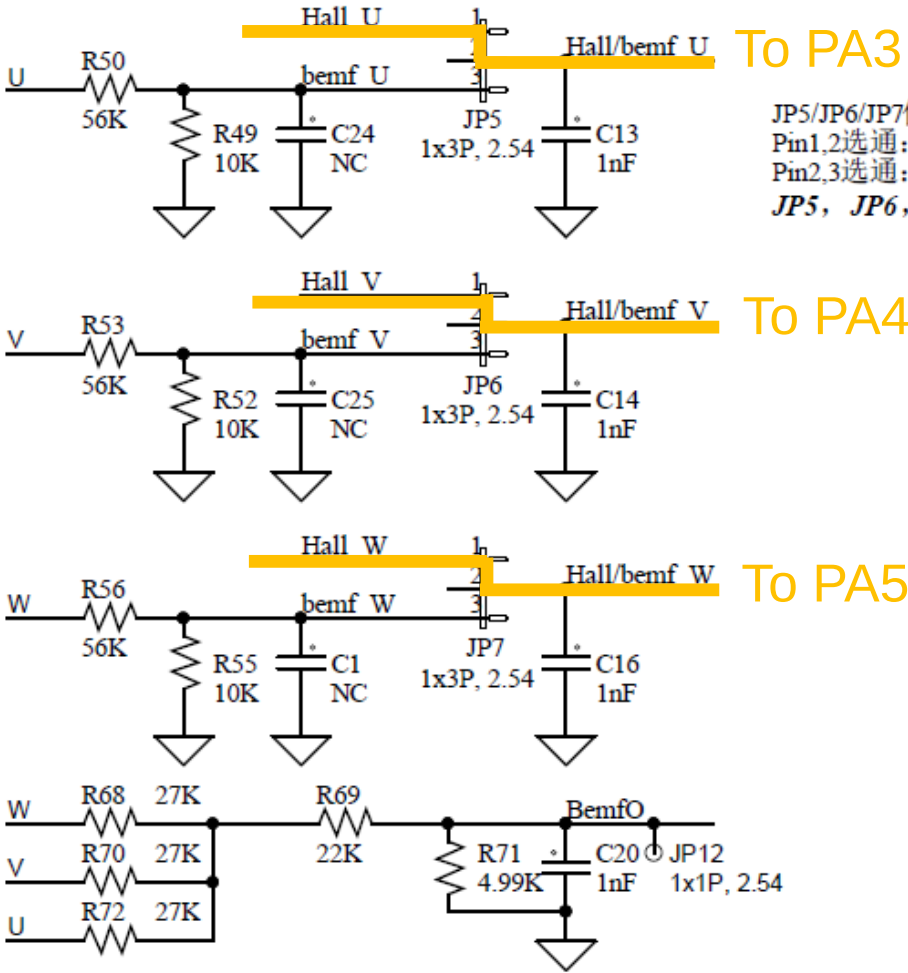
Connect the Pin2-3 of JP4
Select PWM input Polarity Negative



Hardware Settings(3): Hall & BEMF Select

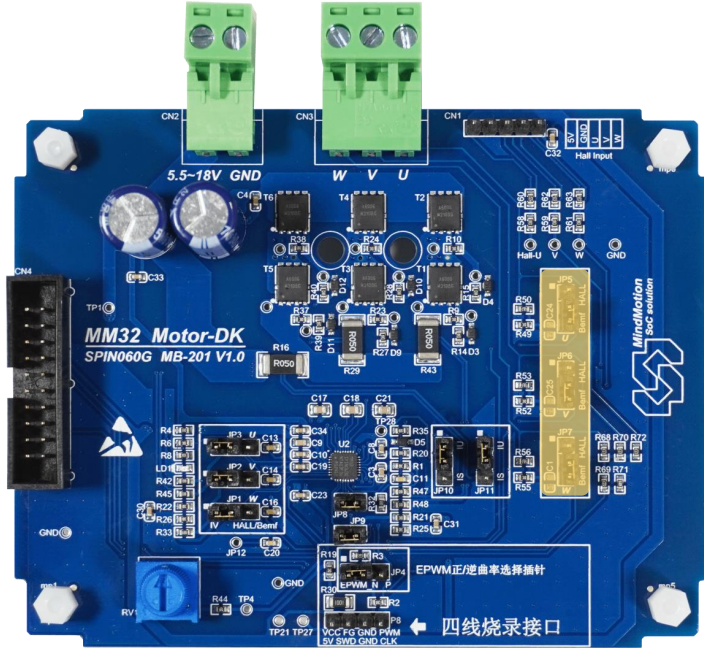


Connect the Pin1-2 of JP5/6/7
Select Hall U/V/W

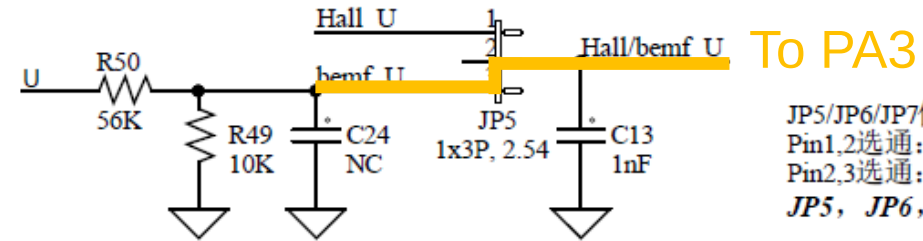


JP5/JP6/JP7信号选择插针
Pin1,2选通: 输入Hall信号
Pin2,3选通: 输入bemf信号
JP5, JP6, JP7成对变换

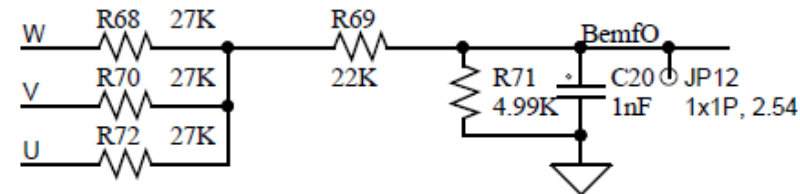
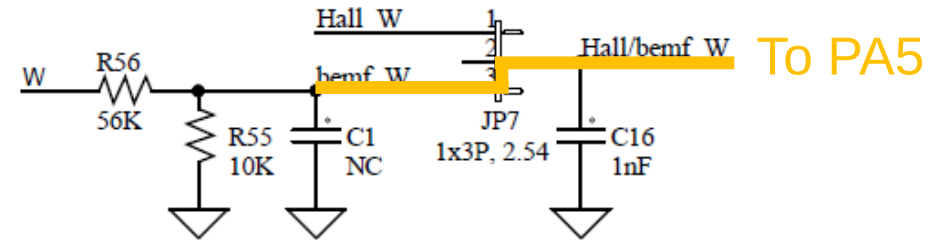
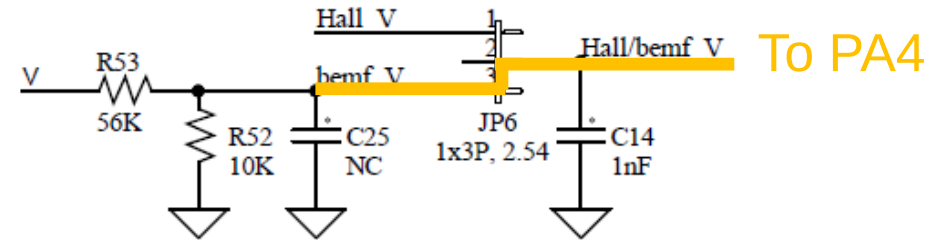
Hardware Settings(3): Hall & BEMF Select



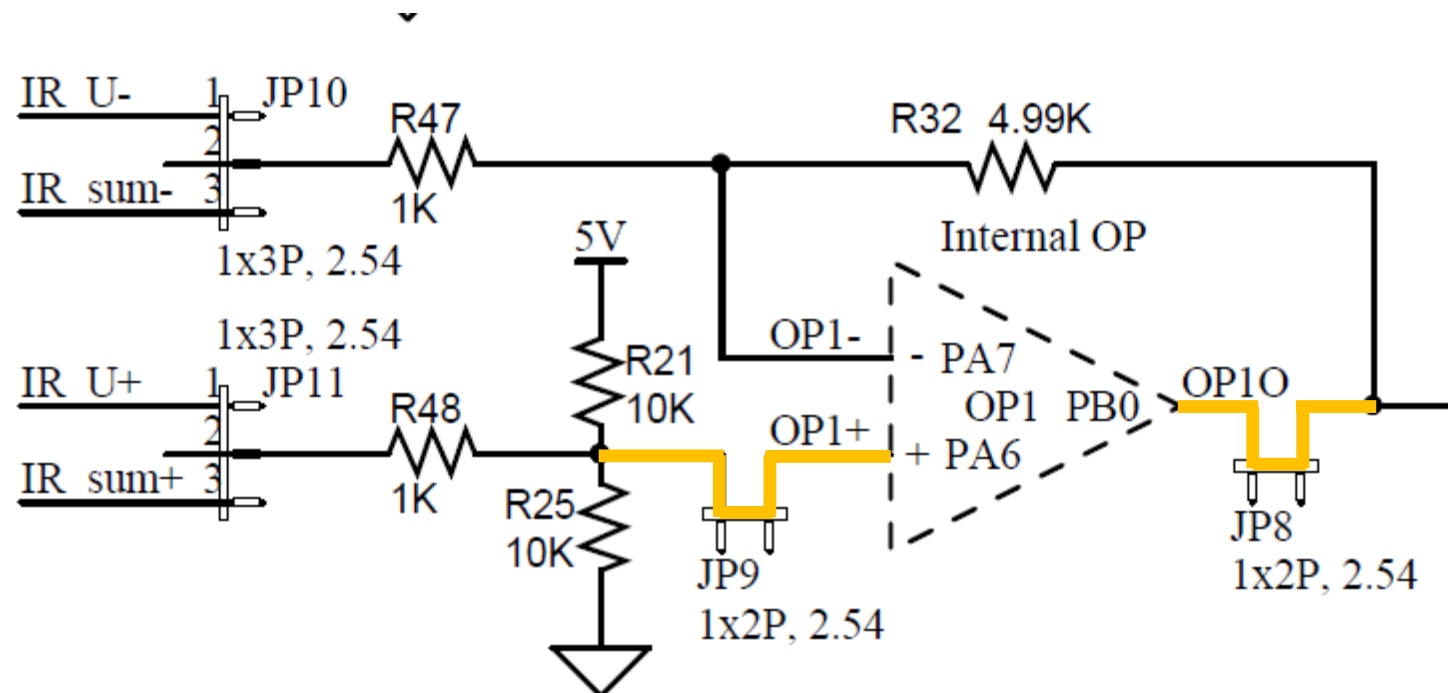
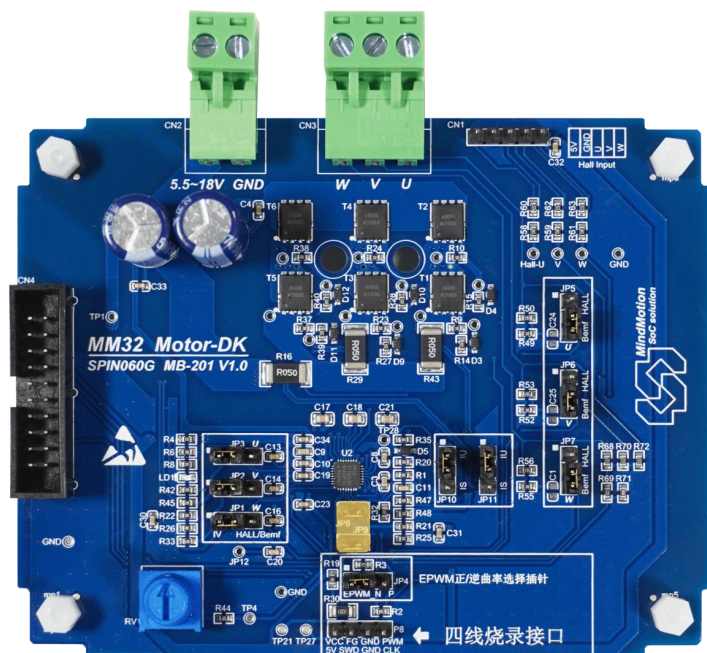
Connect the Pin2-3 of JP5/6/7
Select bemf U/V/W



JP5/JP6/JP7信号选择插针
Pin1,2选通: 输入Hall信号
Pin2,3选通: 输入bemf信号
JP5, JP6, JP7成对变换



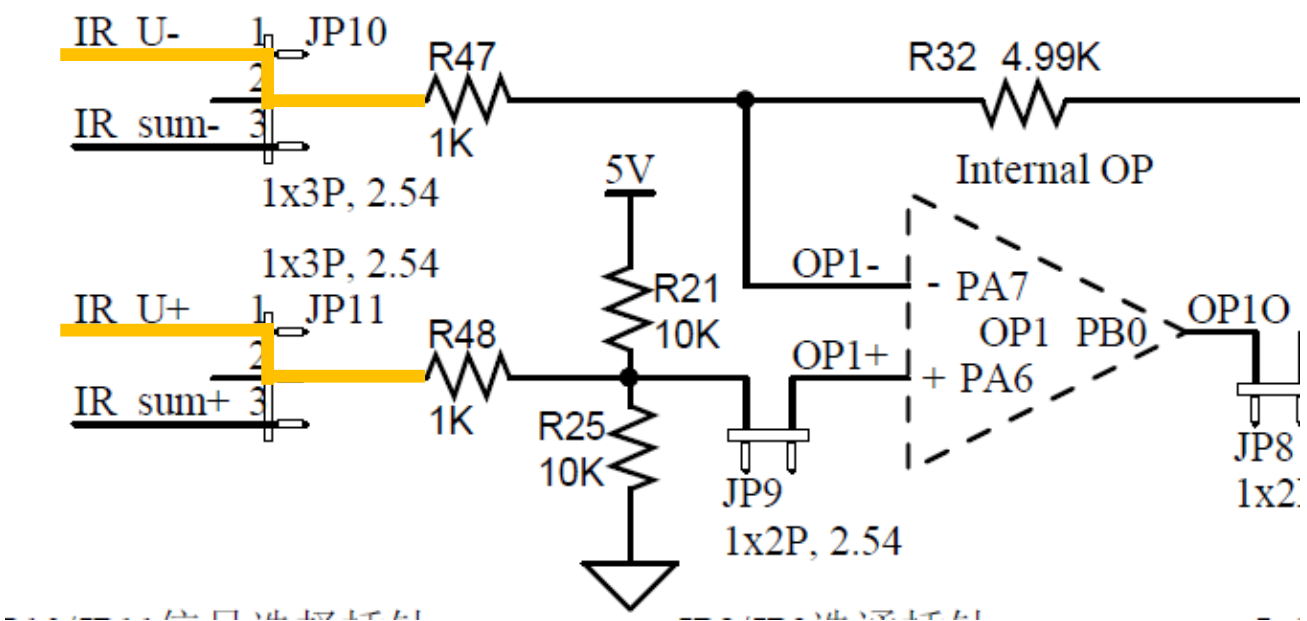
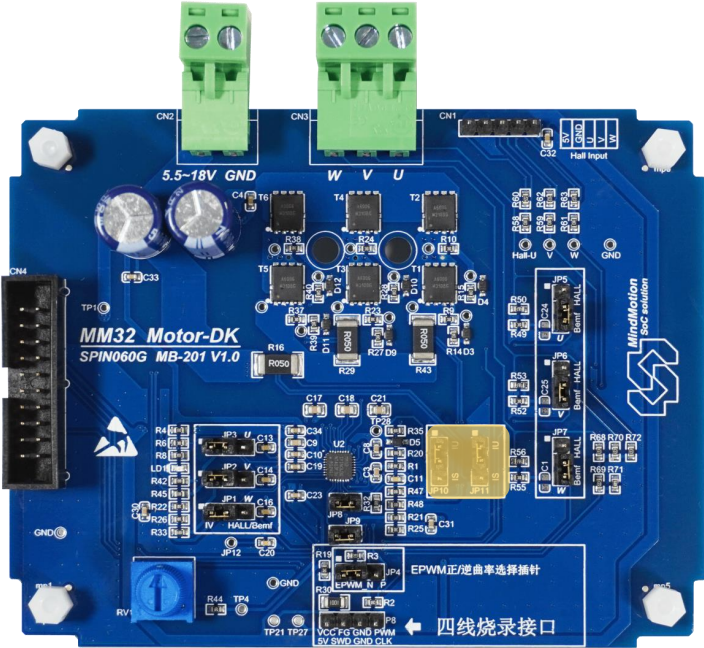
Hardware Settings(4): Select Internal OPA1(default)



Connect the Pin1-2 of JP8/9
Select Internal OPA1(default)

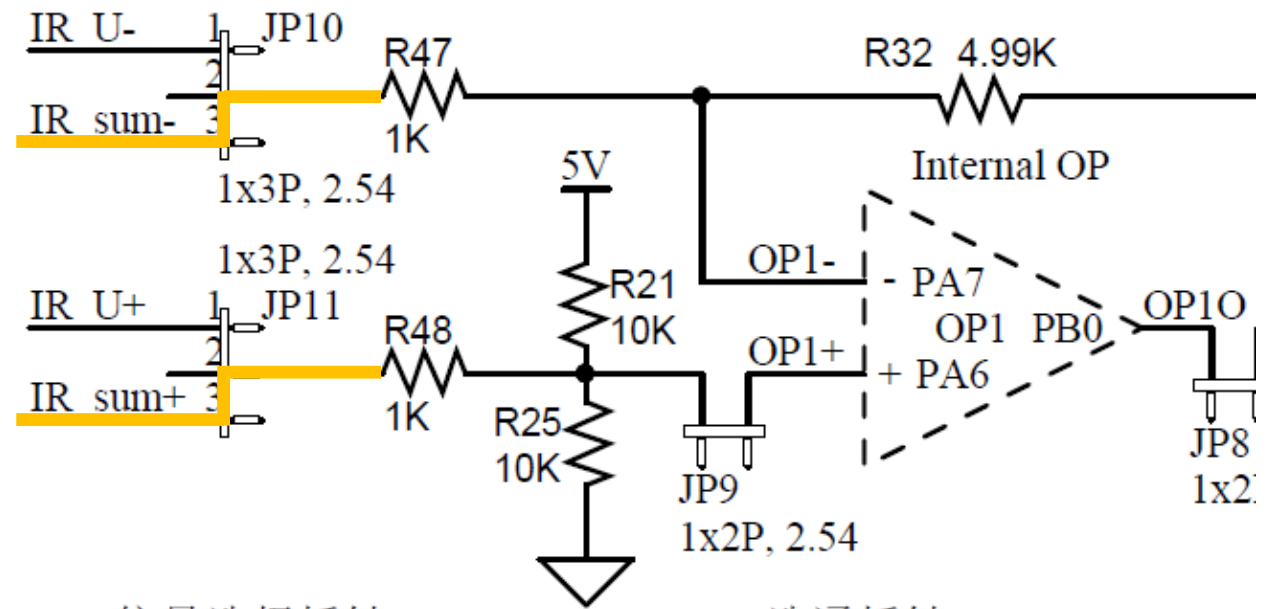
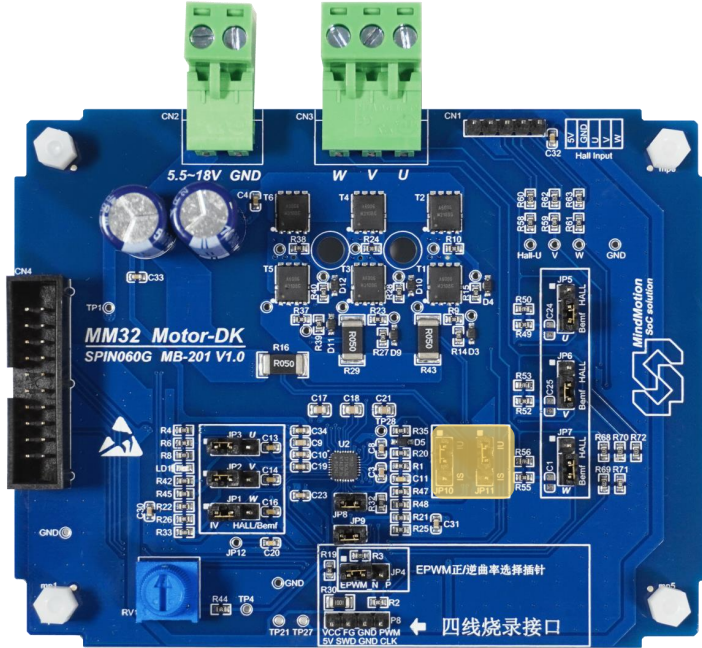
Note: OPA1 is used by default, and the OPA1 will only be turned off in special conditions.

Hardware Settings(5): Select Iu/Isum Sample



Connect the Pin1-2 of JP10/11
Select Iu Sample

Hardware Settings(5): Select Iu/Isum Sample



Connect the Pin2-3 of JP10/11
Select Isum Sample

THANKS