

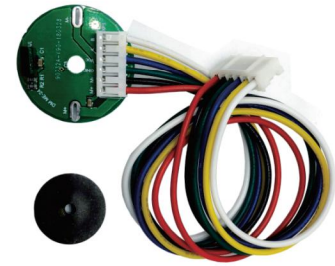
## Dual Channel Hall Encoder

### ME-24

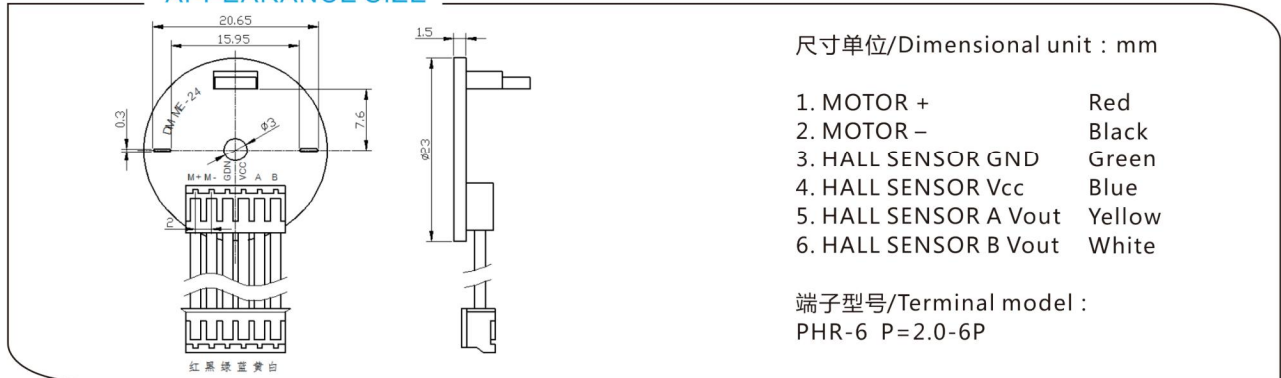
适用电机/Applicable motor : 370

磁对极数/Magnet poles : 13PPR

磁铁尺寸/Magnet size :  $\phi 14 \times \phi 2 \times 4 \text{mm}$



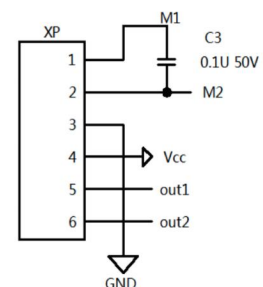
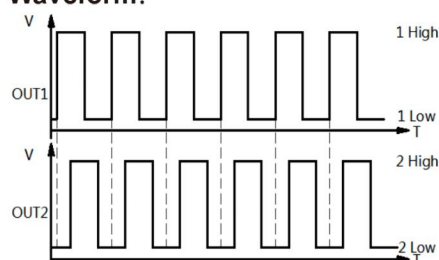
### APPEARANCE SIZE



### Electrical Characteristics:

| 规格特性<br>Characteristics             | 符号<br>Symbol | 测试条件<br>Test Conditions | 值<br>Values |            |            | 单位<br>Unit |
|-------------------------------------|--------------|-------------------------|-------------|------------|------------|------------|
|                                     |              |                         | 最小<br>Min.  | 基本<br>Typ. | 最大<br>Max. |            |
| 工作电压<br>Supply Voltage              | Vs           | Operating               | 3.0         | 5          | 18         | V          |
| 输出电压<br>Output Voltage              | VQ           |                         | -           | -          | 18         | V          |
| 温度<br>Temperature                   | Tj           |                         | -40         | -          | 150        | °C         |
| 输出电流<br>Output Current              | IQ           |                         | -           | -          | 50         | mA         |
| 输入电流<br>Supply Current              | Is           | B < Brp                 | -           | 4          | 6          | mA         |
| 反向电池电压<br>Reverse Battery Voltage   | Vrcc         |                         | -           | -          | -0.5       | V          |
| 输出饱和电压<br>Output Saturation Voltage | VQSAT        | Iout = 10mA, B > Bop    | -           | 0.25       | 5          | V          |
| 输出漏电电流<br>Output Leakage Current    | IQLEAK       | B < Brp, Vout=18V       | -           | 0.1        | 1          | μA         |
| 输出下降时间<br>Output Fall Time          | tf           | RL=10KΩ ;<br>CL=20pF    | -           | -          | 1          | μS         |
| 输出上升时间<br>Output Rise Time          | tr           |                         | -           | -          | 1          | μS         |

### Wavcform:



## 译码器应用/Using the Encoder :

双通道霍尔编码器可以通过安装在电机后出轴上的磁铁检测电机轴转数。编码器板检测磁盘的旋转, 当同时计算两个通道的两个高低边沿时, 正交编码器提供每转52个计数的分辨率。要计算变速箱输出轴的每转计数, 请将齿轮箱减速比乘以52;

A two-channel Hall effect encoder is used to sense the rotation of a magnetic disk on a rear protrusion of the motor shaft. The encoder board senses the rotation of the magnetic disc and provides a resolution of 52 counts per revolution of the motor shaft when counting both edges of both channels. To compute the counts per revolution of the gearbox output shaft, multiply the gear ratio by 52.

霍尔传感器通过VCC和GND引脚供电。VCC可以是3.0 V至18 V, 正交输出A和B是数字信号, 由传感器驱动为低电平(0 V)或通过10kΩ上拉电阻拉至VCC, 具体取决于所施加的磁场。A和B输出是大约90°异相的方波。传感器的比较器具有内置滞后功能, 可防止电机在转换点附近停止时出现杂散信号。转换频率告诉您电机的速度, 转换顺序告诉您电机的旋向;

The hall sensors are powered through the VCC and GND pins. VCC can be 3.0 V to 18 V, and the quadrature outputs A and B are digital signals that are either driven low (0 V) by the sensors or pulled to VCC through 10 kΩ pull-up resistors, depending on the applied magnetic field. The A and B outputs are square waves approximately 90° out of phase. The sensors' comparators have built-in hysteresis, which prevents spurious signals in cases where the motor stops near a transition point. The frequency of the transitions tells you the speed of the motor, and the order of the transitions tells you the direction

通过计算A和B输出的上升沿和下降沿, 可以在电机轴的每转中获得52个计数。仅使用一个通道的单个边沿, 则可以在电机轴每转中获得13个计数.

By counting both the rising and falling edges of both the A and B outputs, it is possible to get 52 counts per revolution of the motor shaft. If using just a single edge of one channel (A or B) results in 13 counts per revolution of the motor shaft.