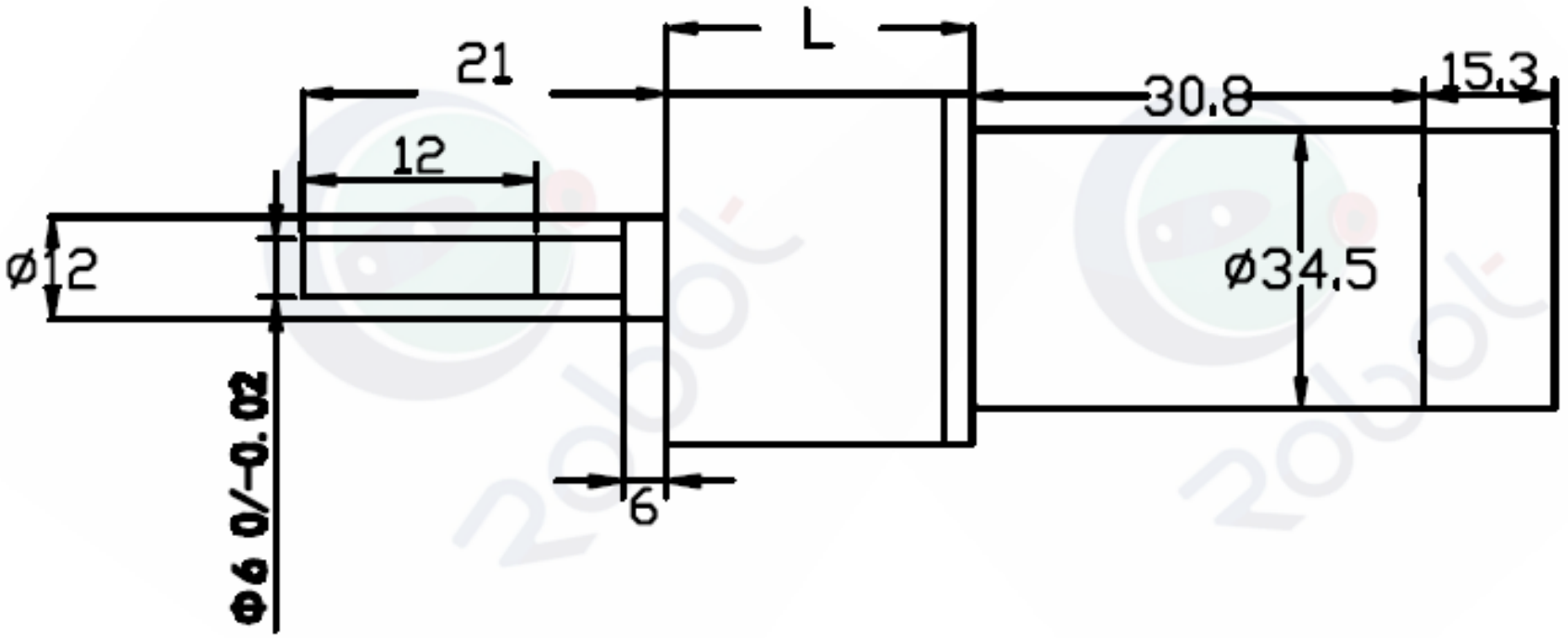
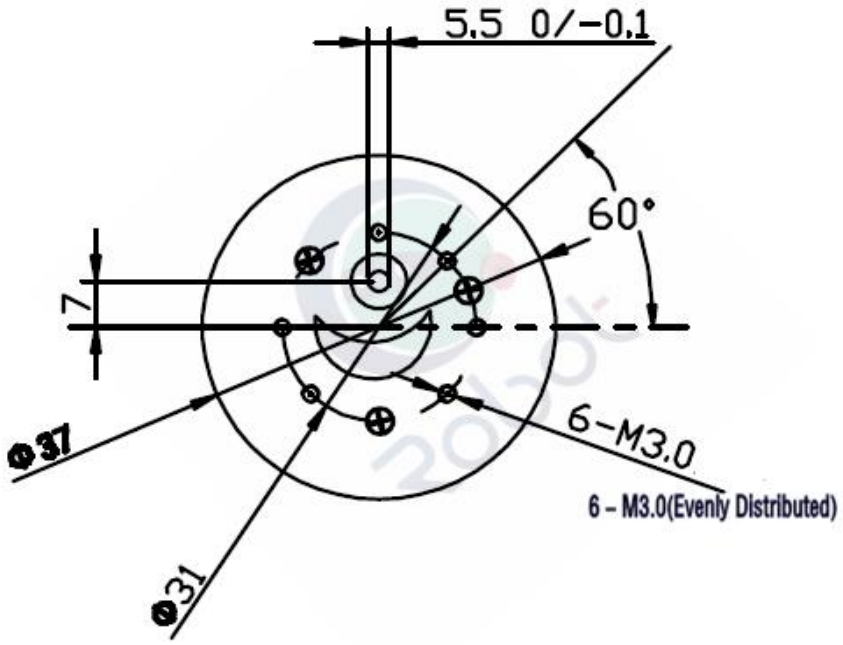
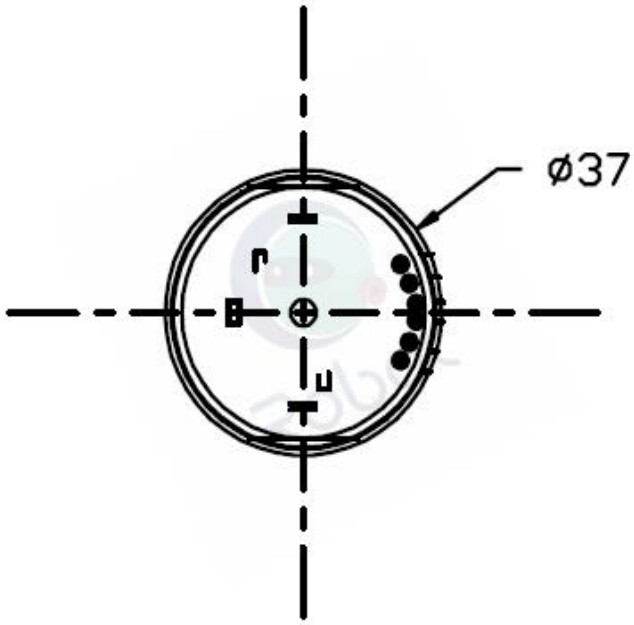
The Motor Rotating Speed Before Reduction: 12V 11000RPM									
Reduction Ratio	18:1	30:1	43.8:1	56.3:1	70:1	90:1	131:1	168:1	270:1
L Length of Gearbox(mm)	22	22	24	24	24	24	26.5	26.5	26.5
No-load Speed(RPM)	585±10%	366±10%	251±10%	195±10%	157±10%	122±10%	83±10%	65±10%	40±10%
No-load Current(mA)	250	250	250	250	250	250	250	250	250
Stall Torque (Kg.cm)	8.6	13	18	23	28	36	45	58	80
Stall Current (A)	6	6	6	6	6	6	6	6	6
Hall Encoder	Incremental Type	Incremental Type	Incremental Type	Incremental Type	Incremental Type	Incremental Type	Incremental Type	Incremental Type	Incremental Type
Encoder Resolution (CPR)	64	64	64	64	64	64	64	64	64
Encoder Operating Voltage(V)	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24	3.3 - 24
Product (ASIN)	B0756J95TY	B073QXQW5Y	B072C3FTST	B0756KB3V8	B0756KVMVR	B01MEGLCPL	B01N755EJ8	B073QYSMTH	B0731MD6JL

1. ASIN: B0756J95TY (18:1)

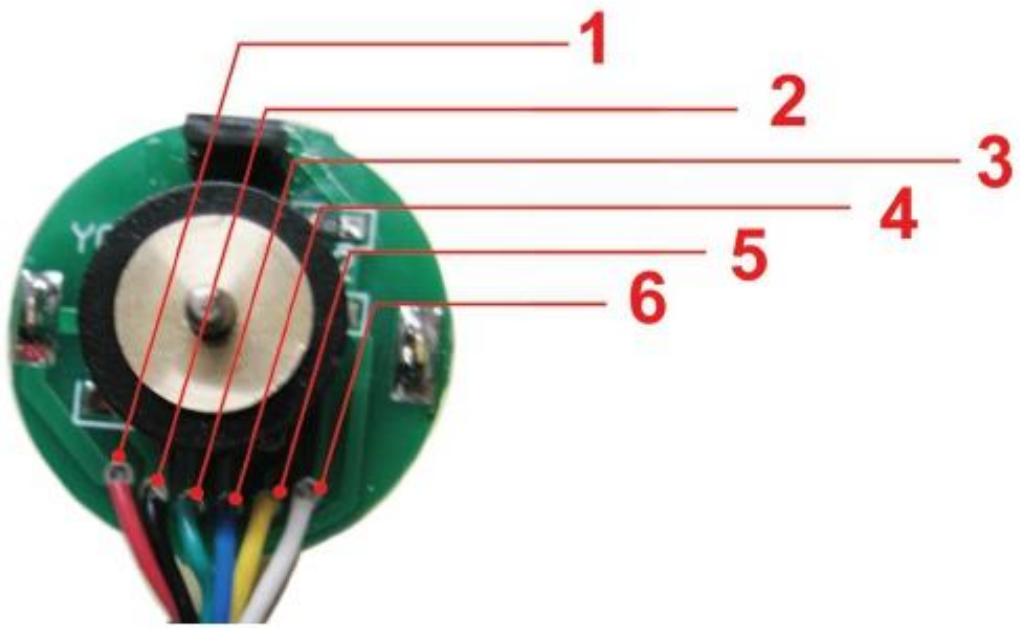
2. **ASIN: B073QXQW5Y (30:1)**
3. **ASIN: B072C3FTST (43.8:1)**
4. **ASIN: B0756KB3V8 (56.3:1)**
5. **ASIN: B0756KVMVR (70:1)**
6. **ASIN: B01MEGLCPL (90:1)**
7. **ASIN: B01N755EJ8 (131:1)**
8. **ASIN: B073QYSMTH (168:1)**
9. **ASIN: B0731MD6JL (168:1)**


L
21
30.8
15.3
12
ø12
ø34.5
Φ6 0/-0.02
6


5.5 0/-0.1
60°
7
⌀37
⌀31
6-M3.0
6 – M3.0(Evenly Distributed)


⌀37

Connect the renderings

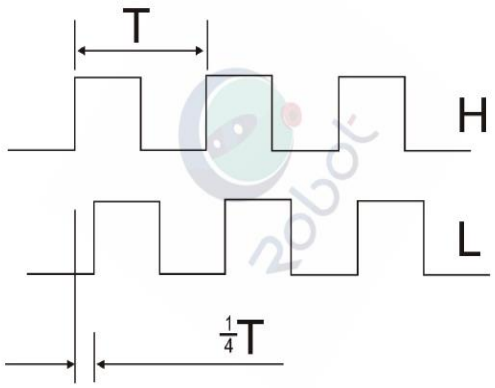


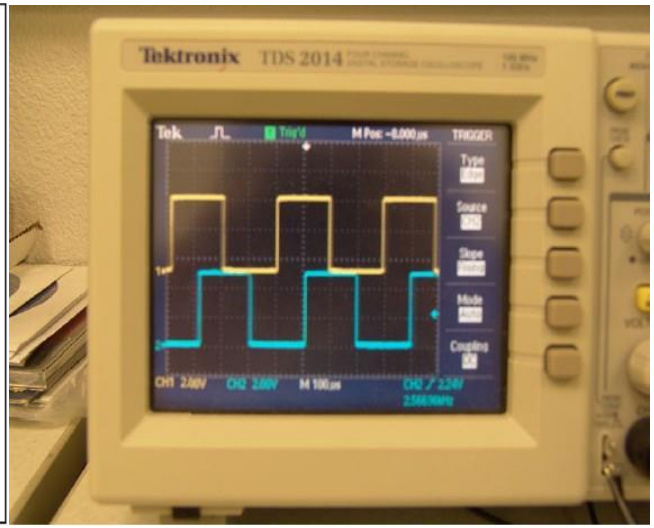
Connection:

1. MOTOR+
2. MOTOR-
3. HALL SENSOR GND
4. HALL SENSOR Vcc
5. HALL SENSOR A Vout
6. HALL SENSOR B Vout

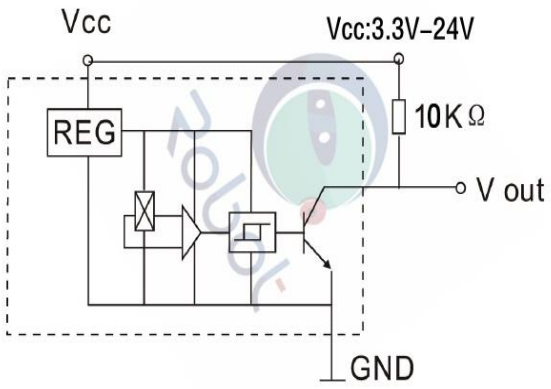
Specifications	Code	Test Conditions	Small	Basic	Big	UNITS
Input Voltage	VCC	---	4.5	---	24	V
Output current	IC	Vcc=12V, GAUSS < -170	---	< 0.1	20	MA

Output Waveform:



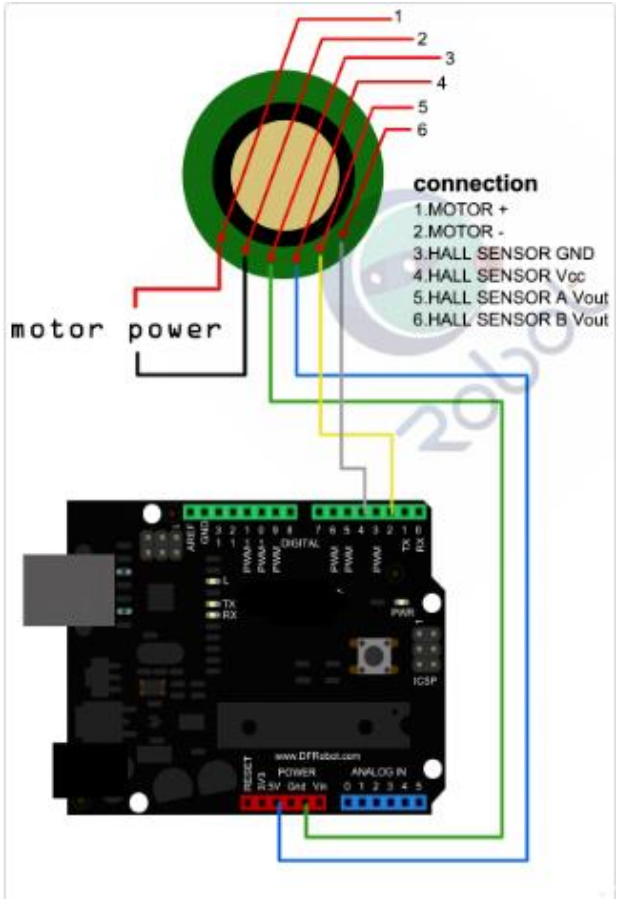


Output Circuit:



Encoder Diagram

====***Diagram for UNO====***



Notcie:attachInterrupt()

Board	int.0	int.1	int.2	int.3	int.4	int.5
Uno, Ethernet	2	3				
Mega2560	2	3	21	20	19	18
Leonardo	3	2	0	1	7	

For example,with **arduino UNO board**, you want to use interrupt port 0(int.0). You should connect digital pin 2 with the board. So, the following code is only used in UNO and Mega2560. If you want to use **arduino Leonardo** or Romeo, you should change digital pin 3 instead of digital pin 2.

See the link for detail http://arduino.cc/en/Reference/AttachInterrupt

Encoder Sample Code

```
//The sample code for driving one way motor encoder
const byte encoder0pinA = 2;//A pin -> the interrupt pin 0
const byte encoder0pinB = 4;//B pin -> the digital pin 4
byte encoder0PinALast;
int duration;//the number of the pulses
```

```
boolean Direction;//the rotation direction



void setup()
{
  Serial.begin(57600);//Initialize the serial port
  EncoderInit();//Initialize the module
}

void loop()
{
  Serial.print("Pulse:");
  Serial.println(duration);
  duration = 0;
  delay(100);
}
```

```
void EncoderInit()
{
  Direction = true;//default -> Forward
  pinMode(encoder0pinB,INPUT);
  attachInterrupt(0, wheelSpeed, CHANGE);
}

void wheelSpeed()
{
  int Lstate = digitalRead(encoder0pinA);
  if((encoder0PinALast == LOW) && Lstate==HIGH)
  {
    int val = digitalRead(encoder0pinB);
    if(val == LOW && Direction)
    {
      Direction = false; //Reverse
```

```
    }
    else if(val == HIGH && !Direction)
    {
      Direction = true;  //Forward
    }
  }
  encoder0PinALast = Lstate;

  if(!Direction)  duration++;
  else  duration--;
}
```