Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Incremental Photoelectric Rotary Encoder - 400P/R
SKU: SEN0230

Introduction

This is an industrial incremental photoelectric rotary encoder with aluminum material, metal shell and stainless steel shaft. It generates AB two-phase orthogonal pulse signal though the rotation of the grating disk and optocoupler. 400 pulses/round for each phase, and 1600 pulses/round for dual-phase 4 times output. This rotary encoder supports max 5000 r/min speed. And it can be used for speed, angle, angular velocity and other data measurement.

The photoelectric rotary encoder has a NPN open collector output. It could work with Microcontroller with internal pull-up resistors directly. And it is using 750L05 voltage regulator chip, which has a DC4.8V-24V wide range power input, compatible with Arduino, STM32, PLC and other types of microcontrollers.
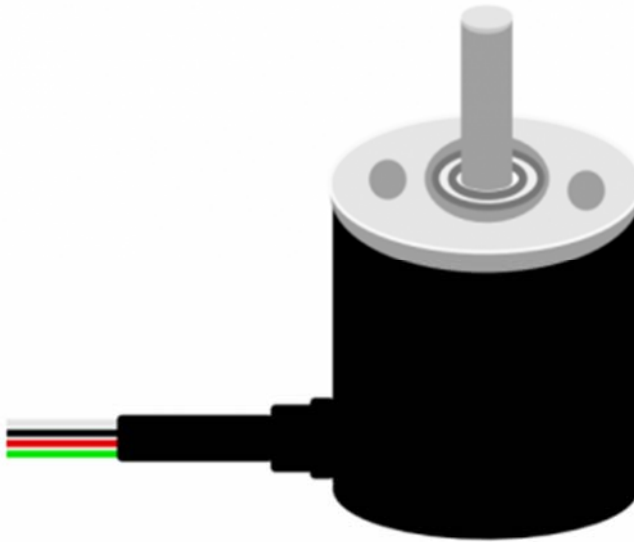
⚠️ Note: NPN open collector output needs pull-up resistors for the oscilloscope display.

Specification

- Supply Voltage: 4.8V ~ 24v
- Encoder Body Size: Φ39× 36.5mm
- Output Shaft Diameter: Φ6 × 13mm
- Outside Shaft Platform: Φ20 × 4.85 mm
- Fixing Holes Screws: M3

Board Overview

Incremental Photoelectric Rotary Encoder - 400P/R

| Num	Label	Description
White	VCC	Power +
Black	GND	Power -
Red	A	Pulse A (Need pull-up Resistor)
Green	B	Pulse B (Need pull-up Resistor)

Tutorial

Direction & Interrupt count

Requirements

- **Hardware**
  DFRduino UNO (or similar) x 1
  Incremental Photoelectric Rotary Encoder
  2x 1K Resistor
  M-M/F-M/F-F Jumper wires

- **Software**
  Arduino IDE, Click to Download Arduino IDE from Arduino®
  https://www.arduino.cc/en/Main/Software%7C

Connection Diagram
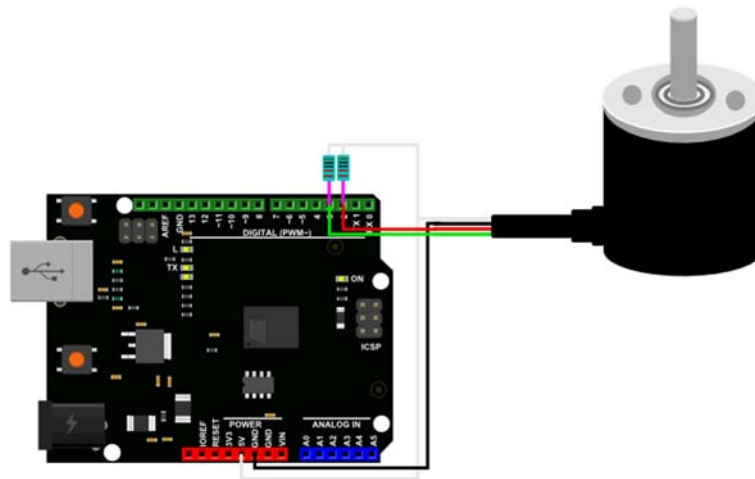
Arduino Connection

Sample Code

```
/****************************************************
  Two phase quadrature encoder(Incremental)
* ****************************************************
   To determine motor with encode  (CW OR CCW)
```

```
  @author Dong

  @version  V1.0

  @date  2016-5-26

  All above must be included in any redistribution

* **************************************************/

#define  A_PHASE 2

#define  B_PHASE 3

unsigned int flag_A = 0;  //Assign a value to the token bit

unsigned int flag_B = 0;  //Assign a value to the token bit

/** *  */

void setup() {

  pinMode(A_PHASE, INPUT);

  pinMode(B_PHASE, INPUT);

  Serial.begin(9600);    //Serial Port Baudrate: 9600

  attachInterrupt(digitalPinToInterrupt( A_PHASE), interrupt, RISING); //Inte
rrupt trigger mode: RISING

}

void loop() {


  Serial.print("CCW:  ");

  Serial.println(flag_A);

  Serial.print("CW: ");

  Serial.println(flag_B);

  delay(1000);// Direction judgement


}

void interrupt()// Interrupt function

{ char i;

  i = digitalRead( B_PHASE);

  if (i == 1)

    flag_A += 1;

  else

    flag_B += 1;

}
```
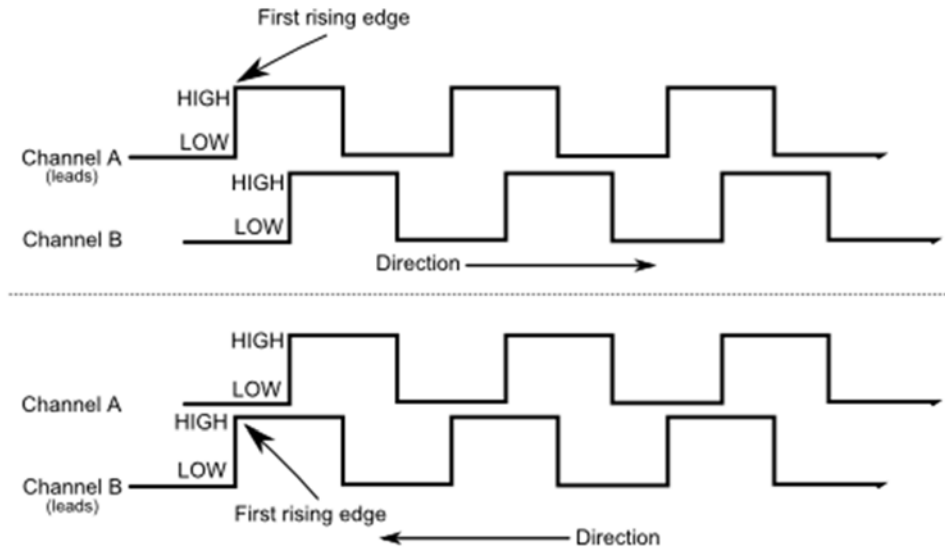
OUTPUT

Expected Results

Use the interruption to detect the rotation direction and count cylinder number