

IR Gaffel sensor - Tacho meter (omdr. tæller)



Receiver del

Ben 1 : Vcc

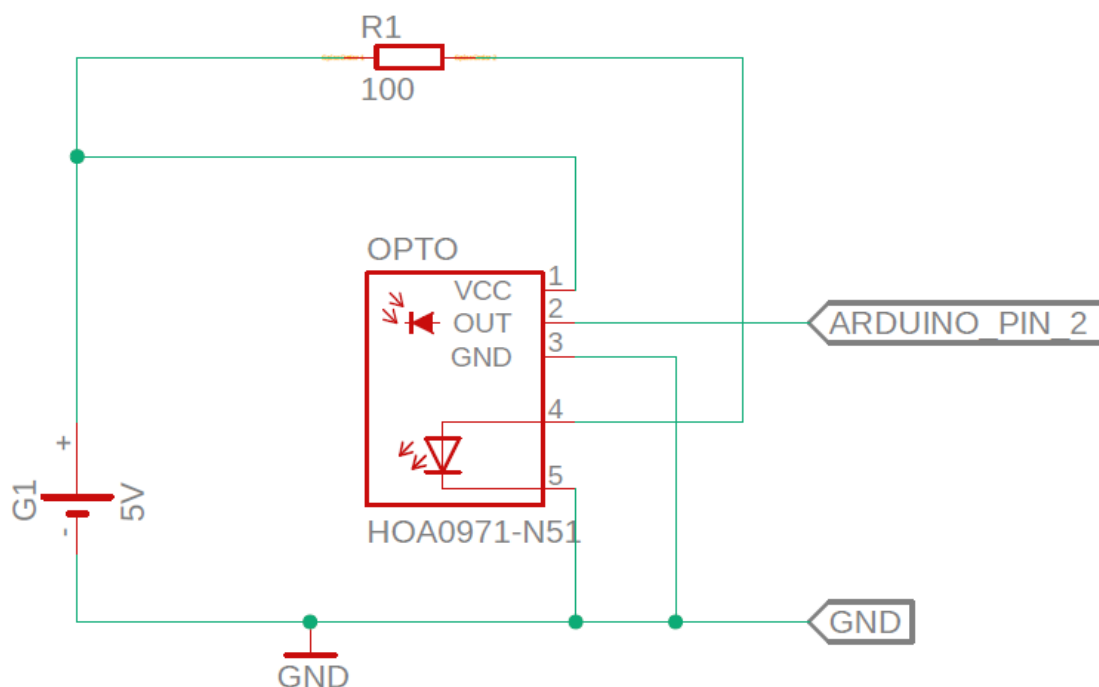
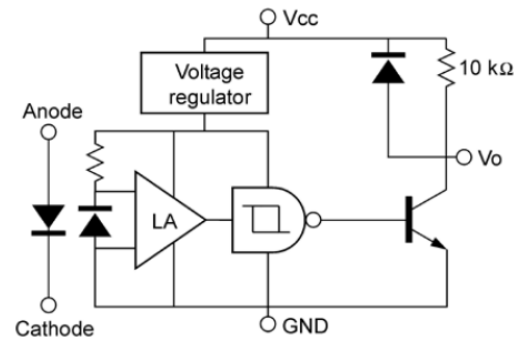
Ben 2 : Vo

Ben 3 : GND

Transmitter del

Ben 4 : Anode

Ben 5 : Cathode



Alt efter spændingen der bruges til gaffellæseren, så skal R1 ændres. Ved Arduino forsyning, bør den ikke være under 68 Ω (se tal for spændinger og strømme på side 5)

Kode til test

Her skal Vo forbindes til Arduinoens pin A0 (Analog IN). Her læses der værdier mellem 0 = 0V og 1023 = 5V

```
1 int val = 0;
2
3 void setup() {
4   // put your setup code here, to run once:
5   Serial.begin(9600);
6
7 }
8
9 void loop() {
10  val = analogRead(0); // read the input pin
11  Serial.println(val); // debug value
12  delay(500);
13 }
14
```

Kode til Tachometer

Her udnyttes Arduinoens interrupt function. Hver gang der kommer en opadgående puls på port 2, så vil isr() funktionen blive kaldt. Så her afbrydes den normale programkørsel i Loop() funktionen. Så alle pulser inden for 1000 ms. vil blive talt op, beregnet og præsenteret på Comporten som et RPM tal.

```
1 const byte ledPin = 13;
2 const byte interruptPin = 2;
3 float rev=0;
4 int rpm;
5 int oldtime=0;
6 int time;
7
8 void isr() //interrupt service routine
9 {
10  rev++;
11 }
12
13
14 void setup() {
15  pinMode(ledPin, OUTPUT);
16  pinMode(interruptPin, INPUT_PULLUP);
17  Serial.begin(115200); // Initialize Serial connection on Comport
18  attachInterrupt(digitalPinToInterrupt(interruptPin), isr, RISING);
19  Serial.println("Ready!");
20 }
21
22 void loop()
23 {
24  delay(1000);
25  detachInterrupt(digitalPinToInterrupt(interruptPin)); //detaches the interr
26  time=millis()-oldtime; //finds the time
27  rpm=(rev/time)*60000; //calculates rpm
28  oldtime=millis(); //saves the current time
29  rev=0;
30  Serial.println(rpm); // measured value
31  attachInterrupt(digitalPinToInterrupt(interruptPin),isr,RISING);// activate interrupt
32 }
33
```

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Representative photograph, actual product appearance may vary.

Due to regional agency approval requirements, some products may not be available in your area. Please contact your regional Honeywell office regarding your product of choice.

HOA0971-N51

HOA Series Infrared Opaque Optoschmitt Sensor, Diode Output, No Mounting Tab, Plastic Package

Features

- Direct TTL interface
- Accurate position sensing
- Four mounting configurations
- Buffer or inverting logic available
- Choice of detector aperture
- 0.125 in [3.18 mm] slot width

Description

The HOA096X/097X series consists of an infrared emitting diode facing an Optoschmitt detector encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The photodetector consists of a photodiode, amplifier, voltage regulator, Schmitt trigger and an NPN output transistor with 10 kΩm (nominal) pull-up resistor. The user can choose from available options: (1) detector aperture size, (2) mounting tab configuration, and (3) housing material.

The HOA096X series utilizes an IR transmissive polysulfone housing which features smooth optical faces without external aperture openings; this feature is desirable when aperture blockage from airborne contaminants is a possibility. The HOA097X series employs an opaque polysulfone housing with aperture openings for use in applications where maximum rejection of ambient light is important and in situations in which maximum position resolution is desired. The HOA096X/097X series employs plastic molded components. For additional component information see SEP8506 and SDP8600.

Housing material is polysulfone. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

Device Polarity:

Buffer - Output is LO when optical path is blocked.

Inverter - Output is HI when optical path is blocked.

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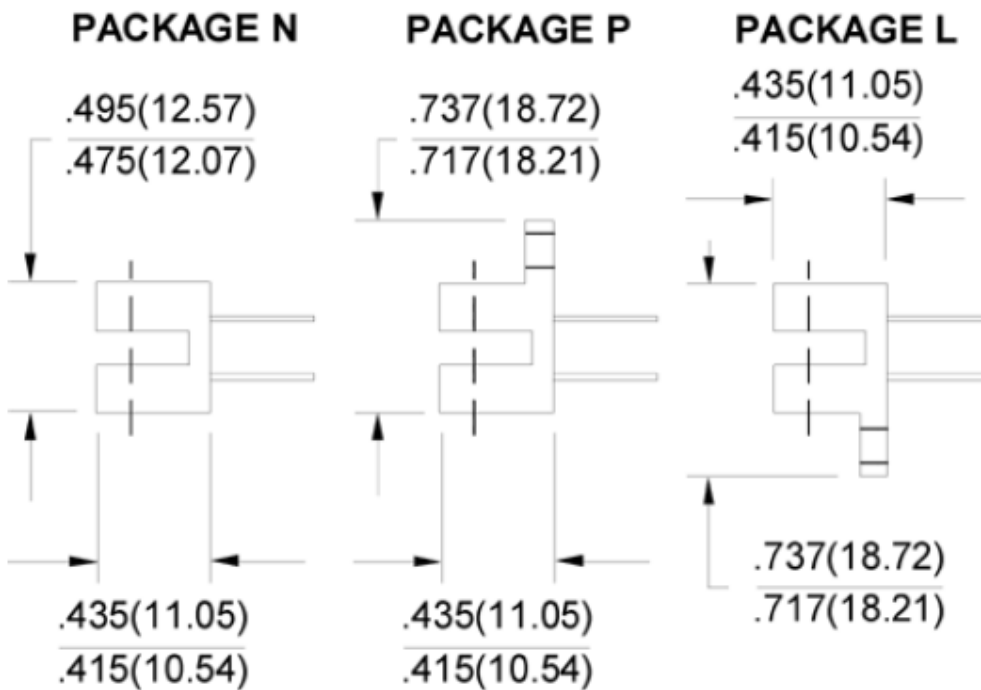
Product Specifications	
Product Type	IR Switch
Output	10 kOhm Pull-up
Output Logic	Buffer
Mounting Configuration	No Mounting Tab
Package Components	Plastic
Package Color	Black
Continuous Forward Current	50 mA
Forward Voltage	1.6 V
Reverse Breakdown Voltage	3 V
Reverse Current	10 μ A
Maximum Trigger Current	20 mA
Housing Material	Polysulfone, Opaque
Power Dissipation	100 mW
Operating Temperature Range	-40 °C to 70 °C [-40 °F to 158 °F]
Collector-Emitter Saturation Voltage	0.4 V
Hysteresis (H)	10%
Operating Supply Voltage	4.5 V to 10 V
High Level Output Voltage	2.4 V minimum
High Level Supply Current	2.0 mA to 10 mA
Low Level Output Voltage	0.4 V maximum
Low Level Supply Current	4.0 mA to 12 mA
Internal Pull-up Resistor	5.0 kOhm min., 10.0 kOhm typ., 20.0 kOhm max.
Output Rise Time	60 ns
Output Fall Time	15 ns
Propagation Delay, Low-High,High-Low	5.0 μ s
IRED Trigger Current	20 mA

Comment	Output is LO when incident light intensity is above the turn-on threshold level.
Availability	Global
Product Name	Optoschmitt Sensor
Sensor Aperture	1,52 mm x 0,25 mm [0.060 in x 0.010 in]
Slot Width	3,18 mm [0.125 in]

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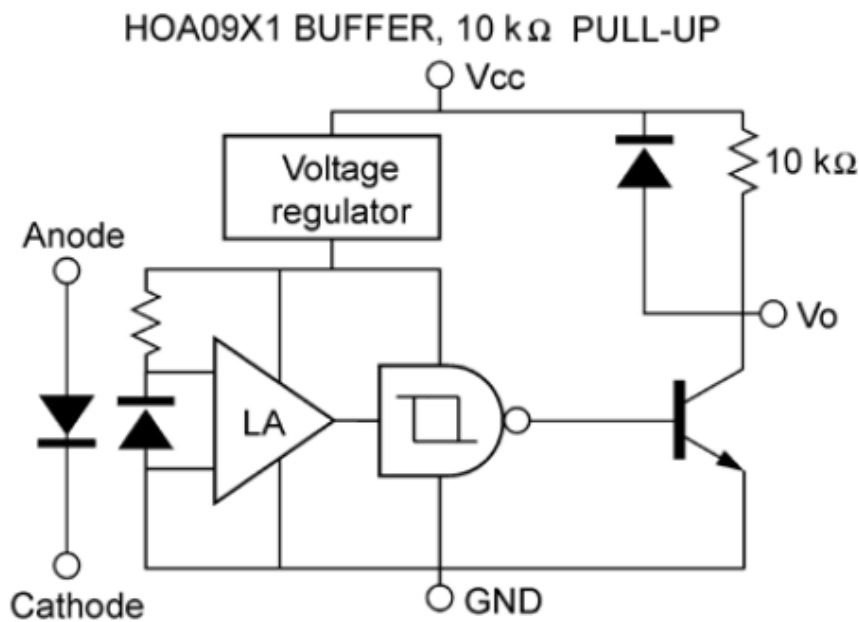
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⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.