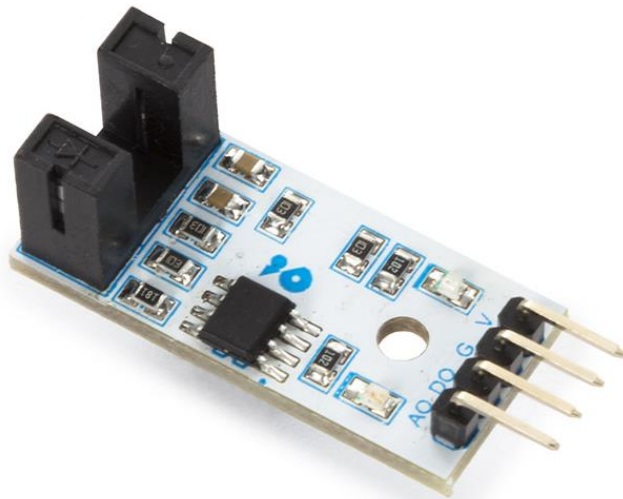
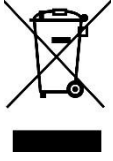


**EN** IR speed sensor module

WPSE347



## Introduction



### **To all residents of the European Union** **Important environmental information about this product**

This symbol on the device or the package indicates that disposal of the device after its lifecycle could harm the environment. Do not dispose of the unit (or batteries) as unsorted municipal waste; it should be taken to a specialized company for recycling. This device should be returned to your distributor or to a local recycling service. Respect the local environmental rules.

**If in doubt, contact your local waste disposal authorities.**

Thank you for choosing Whadda! Please read the manual thoroughly before bringing this device into service. If the device was damaged in transit, do not install or use it and contact your dealer.

## Safety Instructions



Read and understand this manual and all safety signs before using this appliance.



For indoor use only.

- This device can be used by children aged from 8 years and above, and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the device in a safe way and understand the hazards involved. Children shall not play with the device. Cleaning and user maintenance shall not be made by children without supervision.

## General Guidelines

- Refer to the Velleman® Service and Quality Warranty on the last pages of this manual.
- All modifications of the device are forbidden for safety reasons. Damage caused by user modifications to the device is not covered by the warranty.
- Only use the device for its intended purpose. Using the device in an unauthorized way will void the warranty.
- Damage caused by disregard of certain guidelines in this manual is not covered by the warranty and the dealer will not accept responsibility for any ensuing defects or problems.
- Nor Velleman Group nv nor its dealers can be held responsible for any damage (extraordinary, incidental or indirect) – of any nature (financial, physical...) arising from the possession, use or failure of this product.
- Keep this manual for future reference.

## What is Arduino®

Arduino® is an open-source prototyping platform based on easy-to-use hardware and software. Arduino® boards are able to read inputs – light-on sensor, a finger on a button or a Twitter message – and turn it into an output – activating of a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so, you use the Arduino programming language (based on Wiring) and the Arduino® software IDE (based on Processing). Additional shields/modules/components are required for reading a twitter message or publishing online. Surf to [www.arduino.cc](http://www.arduino.cc) for more information.

## Product Overview

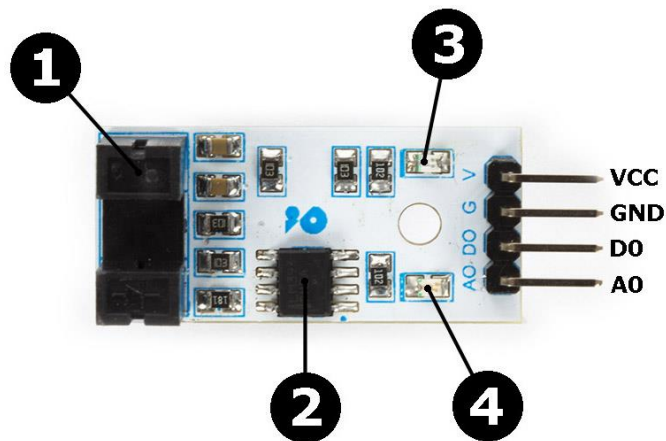
### General

The WPSE347 is a LM393 speed sensor module, widely used in motor speed detection, pulse count, position control, etc.

The sensor is very easy to operate: To measure the speed of a motor, make sure the motor has a disk with holes. Each hole should be equally spaced on the disk. Every time the sensor sees a hole, it creates a digital pulse on the DO pin. This pulse goes from 0 V to 5 V and is a digital TTL signal. If you capture this pulse on a development board and calculate the time between the two pulses, you can determine the revolutions speed: (time between pulses x 60)/number of holes.

For example, if you have one hole in the disk and the time between two pulses is 3 seconds, you have a revolutions speed of  $3 \times 60 = 180$  rpm. If you have 2 holes in the disk, you have a revolutions speed of  $(3 \times 60/2) = 90$  rpm.

### Overview



<b>1</b>	opto-interrupter
<b>2</b>	LM393

<b>3</b>	power LED
<b>4</b>	data LED

VCC: module power supply from 3.0 to 12 V.

GND: ground.

DO: digital signal of the output pulses.

AO: analogue signal of the output pulses. Output signal in real-time (usually not used).

## Specifications

- working voltage: 3.3-5 VDC
- groove width: 5 mm
- weight: 8 g
- dimensions: 32 x 14 x 7 mm (1.26 x 0.55 x 0.27")

## Features

- 4-pin connector: analogue out, digital out, ground, VCC
- LED power indicator
- LED indicator of the output pulses at D0

## Connection

WPB100/Arduino® UNO		WPSE347
VCC	▶	V
GND	▶	G
any digital I/O pin	▶	D0
	▶	A0



If the WPSE347 is used close to a DC motor, it may pick-up interferences with as result more pulses on D0 as there really are. In this case use a ceramic capacitor with a value between 10 and 100 nF between D0 and GND (debounce). This capacitor should be as close as possible to the WPI437.

## Testing Sketch

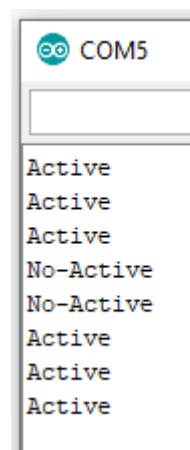
```
const int sensorPin = 2; // PIN 2 has been used as input
void setup(){
  Serial.begin(9600);
  pinMode(sensorPin , INPUT);
}

void loop(){
  int value = 0;
  value = digitalRead(sensorPin );

  if (value == LOW){
    Serial.println("Active");
  }
  if (value == HIGH){
    Serial.println("No-Active");
  }

  delay(1000);
}
```

The result in the serial monitor:







[whadda.com](http://whadda.com)