# WHADDA

## EXCITING ELECTRONICS
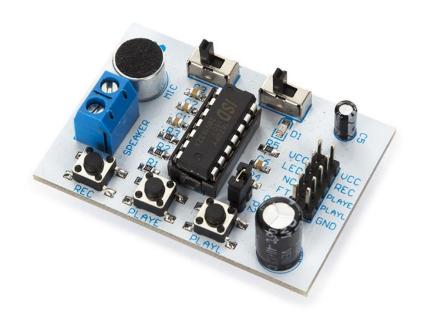
**EN**  ISD1820 voice record/play module

WPM449

# 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.
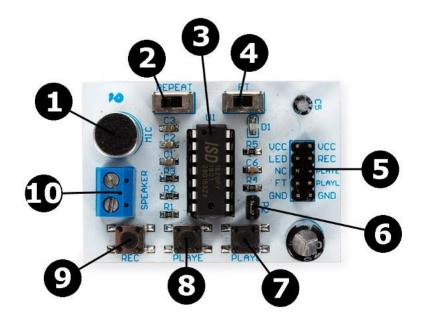- Keep this manual for future reference.

## 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 for more information.

## Product Overview

The ISD1820 VOICE RECORD/PLAY MODULE carries the ISD1820 voice record and playback IC to record a single voice message of up to 20 seconds in length.
The recorded message is stored in its analogue flash memory that will keep the message stored even when power is removed. The module includes an on-board microphone to record your message and push buttons for record, partial playback, or full playback of the message functions. Header pins allow for easy interface to a microcontroller and playback can be controlled with just one digital pin. The board also includes a screw connector to connect it with the included mini speaker of 0.5 W / 8 Ohm - Ø 50 mm.



1.  **MIC** – Microphone input. The microphone input transfers its signals to the on-chip amplifier.
2.  **REPEAT** – Loop play the recorded sounds.
3.  **ISD1820** – Record/playback chip.
4.  **FT** – Feed Through. This mode connects the speaker driver to the microphone amplifier.
5.  **Lead out header** – VCC (3-5VDC)/LED/NC/FT/GND – VCC/REC/PLAYE/PLAYL/GND.

6. **P2** – Default short connection Rosc to 100 kΩ resistor R4, which means the record duration is 10 seconds.
7. **PLAYL** – Playback, level activated. When this input transits from LOW to High a playback cycle is initiated.
8. **PLAYE** – Playback, edge-activated. When a HIGH going transition is detected the recorded message will be played until the end of the recording.
9. **REC** – The REC input is an active HIGH record signal, the device records whenever REC is high. REC takes precedence over either PLAYL or PLAYE.
10. **Speaker outputs** – The SP+ and SP- provide direct drive for an 8Ω loudspeaker or can also be used to connect to an amplifier (for example VMA408).

## Specifications

- power supply: 3-5 VDC
- output power: 24 mW
- dimensions: 37 x 54 mm (1.45" x 2.12")

## Features

- push-button interface, playback can be edge- or level-activated
- automatic power down mode
- on-chip 8 Ω speaker driver
- can be controlled manually or by MCU
- sample rate and duration can be changed by placing a resistor instead of jumper-cap P2
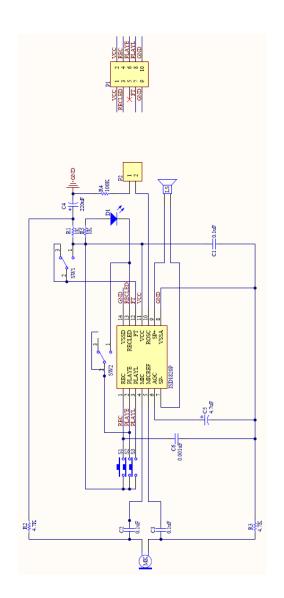- default recording time of 10 seconds

## Timing Table

| Rosc (R4 + P2) | Duration | Sample rate | Bandwidth |
|---|---|---|---|
| 80 kΩ | 8 s | 8.0 kHz | 3.4 kHz |
| 100 kΩ | 10 s | 6.4 kHz | 2.6 kHz |
| 120 kΩ | 12 s | 5.3 kHz | 2.3 kHz |
| 160 kΩ | 16 s | 4.0 kHz | 1.7 kHz |
| 200 kΩ | 20 s | 3.2 kHz | 1.3 kHz |

# Operating Guide

1. Hold the REC button to record. The REC LED (D1) will light. Releasing the REC button will stop the recording.
2. Select the playback mode:
   o PLAYE: push one time and the full recording will be played.
   o PLAYL: the recording plays as long as the button is pushed.
   o REPEAT: move this sliding switch to the other position and the recording will continue playing time after time.
   o FT mode: move this switch to the other position, all the sound captured by the MIC will go directly.

# Schematic