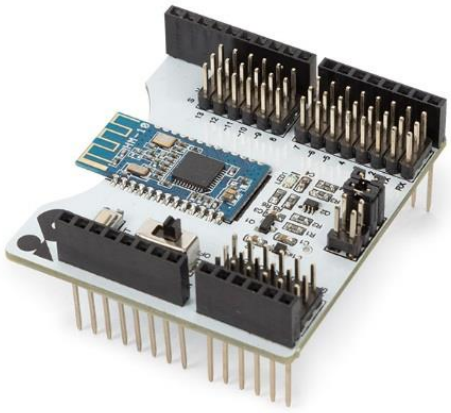
WHADDA
EXCITING ELECTRONICS

USER MANUAL

EN HM-10 wireless shield for Arduino® Uno

WPSH338



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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.

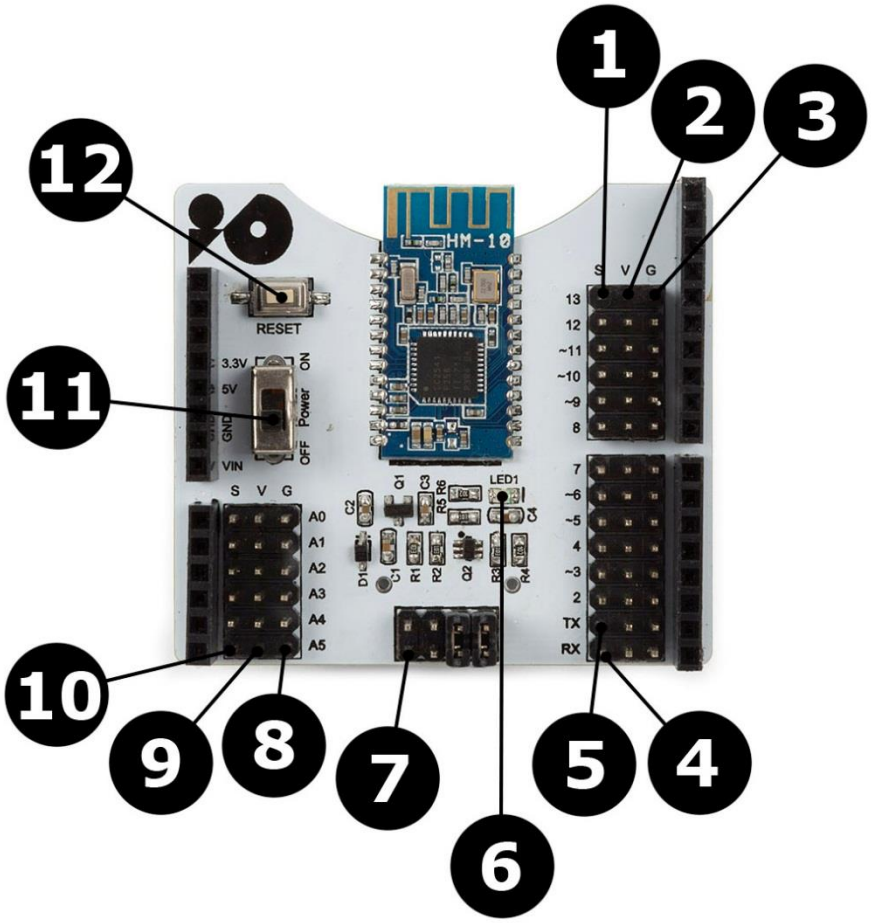
Product Overview

The WPSH338 uses an HM-10 module with Texas Instruments® CC2541 Bluetooth v4.0 BLE chip, fully compatible with WPB100 UNO. This shield has extended all the digital and analogue pins out into 3PIN, making it easy to connect to sensors using 3PIN wire.
A switch is provided to switch on/off the HM-10 BLE 4.0 module, and 2 jumpers allow to select D0 and D1 or D2 and D3 as serial communication port.

Specifications

- pin header spacing: 2.54 mm
- Bluetooth® chip: Texas Instruments® CC2541
- USB protocol: USB V2.0
- working frequency: 2.4 GHz ISM band
- modulation method: GFSK (Gaussian Frequency Shift Keying)
- transmission power: -23 dBm, -6 dBm, 0 dBm, 6 dBm, can be modified by AT command
- sensitivity: =-84 dBm at 0.1% BER
- transmission rate: asynchronous 6K bytes
- security: authentication and encryption
- supporting service: central & peripheral UUID FFE0, FFE1
- power consumption: 400-800 µA during standby, 8.5 mA during transmission
- power supply shield: 5 VDC
- power supply HM10: 3.3 VDC
- working temperature: -5 to +65 °C
- dimensions: 54 x 48 x 23 mm
- weight: 19 g

Description



1	D2-D13
2	5 V
3	GND
4	RX (D0)
5	TX (D1)
6	Bluetooth® LED
7	Bluetooth® communication pin settings, default D0 D1; another RX TX pin to set the serial port, RX to D3, TX to D2
8	GND
9	5 V
10	A0-A5
11	Bluetooth® on-off switch
12	reset button

Example

In this example, we use one WPSH338 mounted on the WPB100 (UNO) and a recent Android Smartphone to communicate with.

Please be aware that BLE (Bluetooth® Low Energy) is NOT backward compatible with the older "Classic" Bluetooth®. For more information, please see https://en.wikipedia.org/wiki/Bluetooth_Low_Energy.

Carefully mount the WPSH338 onto the WPB100 (UNO), copy-paste the code below into the Arduino® IDE (or download the VMA338_test.zip file from our website).

```
int val;
int ledpin=13;
void setup()
{
Serial.begin(9600);
pinMode(ledpin,OUTPUT);
} void loop()
{ val=Serial.read();
if(val=='a')
 {
digitalWrite(ledpin,HIGH);
delay(250);
digitalWrite(ledpin,LOW);
delay(250);
 Serial.println("Velleman VMA338 Bluetooth 4.0 Shield");
}
}
```

Remove the two RX/TX jumpers from the WPSH338 or switch off the HM-10 module (you have to send the code to the WPB100, not to the WPSH338), and compile–upload the code.

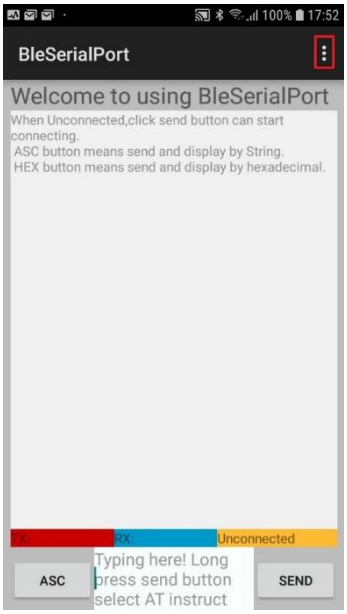
Once the upload finished, you can put back the two jumpers or switch on the HM-10.

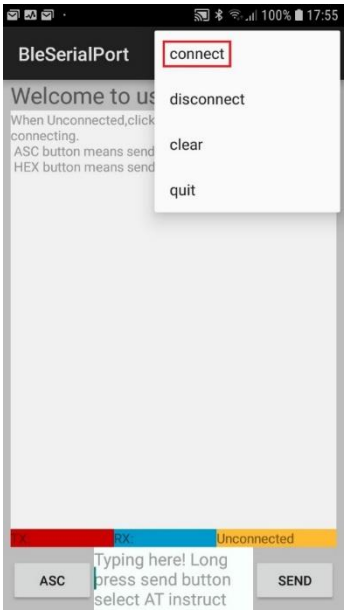
Now, it is time to prepare the smartphone where we need a Bluetooth® terminal to talk and listen to the WPSH338. As mentioned before, BLE 4.0 is NOT compatible with classic Bluetooth® so many of the available Bluetooth® terminal apps will NOT work.

Download the app BleSerialPort.zip or BleSerialPort.apk from our website.

Install the BleSerialPort app and open it.

You will see a screen like this. Tap on the three dots and select "connect".

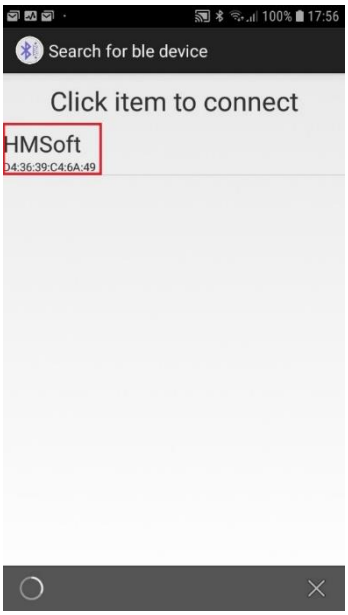


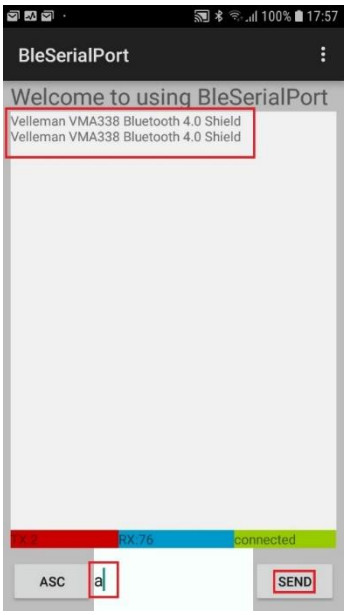


Make sure the Bluetooth® function is switched on and your phone is BLE compatible. You should now see the WPSH338 under the name HMSoft. Connect to it.

Type "a" and send it to the WPSH338. The WPSH338 will answer with "Velleman WPSH338 [...]".

At the same time, the LED connected to D13 on the WPB100 (UNO) will switch on for a few seconds.





An interesting link about the HM-10 and BLE: http://www.martyncurrey.com/hm-10-bluetooth-4ble-modules/.

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Velleman Group nv, Legen Heirweg 33 - 9890 Gavere