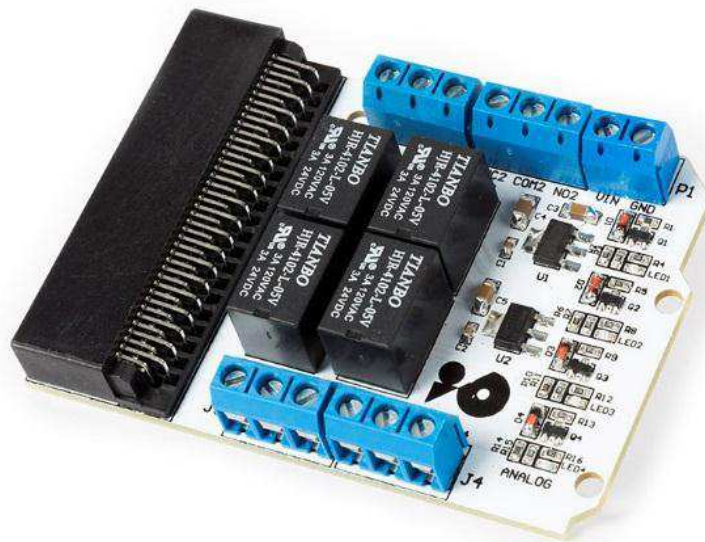


velleman®

VMM400

4-CHANNEL RELAY MODULE FOR MICRO:BIT



USER MANUAL



USER MANUAL

1. 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 Velleman®! 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.

2. Safety Instructions



- 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.



- Indoor use only.
Keep away from rain, moisture, splashing and dripping liquids.

3. General Guidelines



- Refer to the Velleman® Service and Quality Warranty on the last pages of this manual.
- Familiarise yourself with the functions of the device before actually using it.
- 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 unauthorised 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 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.
- Due to constant product improvements, the actual product appearance might differ from the shown images.
- Product images are for illustrative purposes only.
- Do not switch the device on immediately after it has been exposed to changes in temperature. Protect the device against damage by leaving it switched off until it has reached room temperature.
- Keep this manual for future reference.

4. What is micro:bit?

The BBC micro:bit is a pocket-sized (52 x 42 mm – 2" x 1.75") computer, 70 times smaller and 18 times faster than the original BBC micro computers used in schools. The design is appealing to a young public. It features 25 red LEDs used to flash messages and create games.

micro:bit is compatible with different coding languages starting from Block Editor and mobile apps for the starters, to Python for more advanced users.

micro:bit has an accelerometer so it can detect motion and knows when you are on the move. The built-in compass knows which direction you are heading in and it uses a low-energy wireless connection to interact with other devices and the Internet.

Each element is completely programmable via easy-to-use software on a dedicated website (microbit.org) accessible from a PC, tablet or mobile.

5. Overview

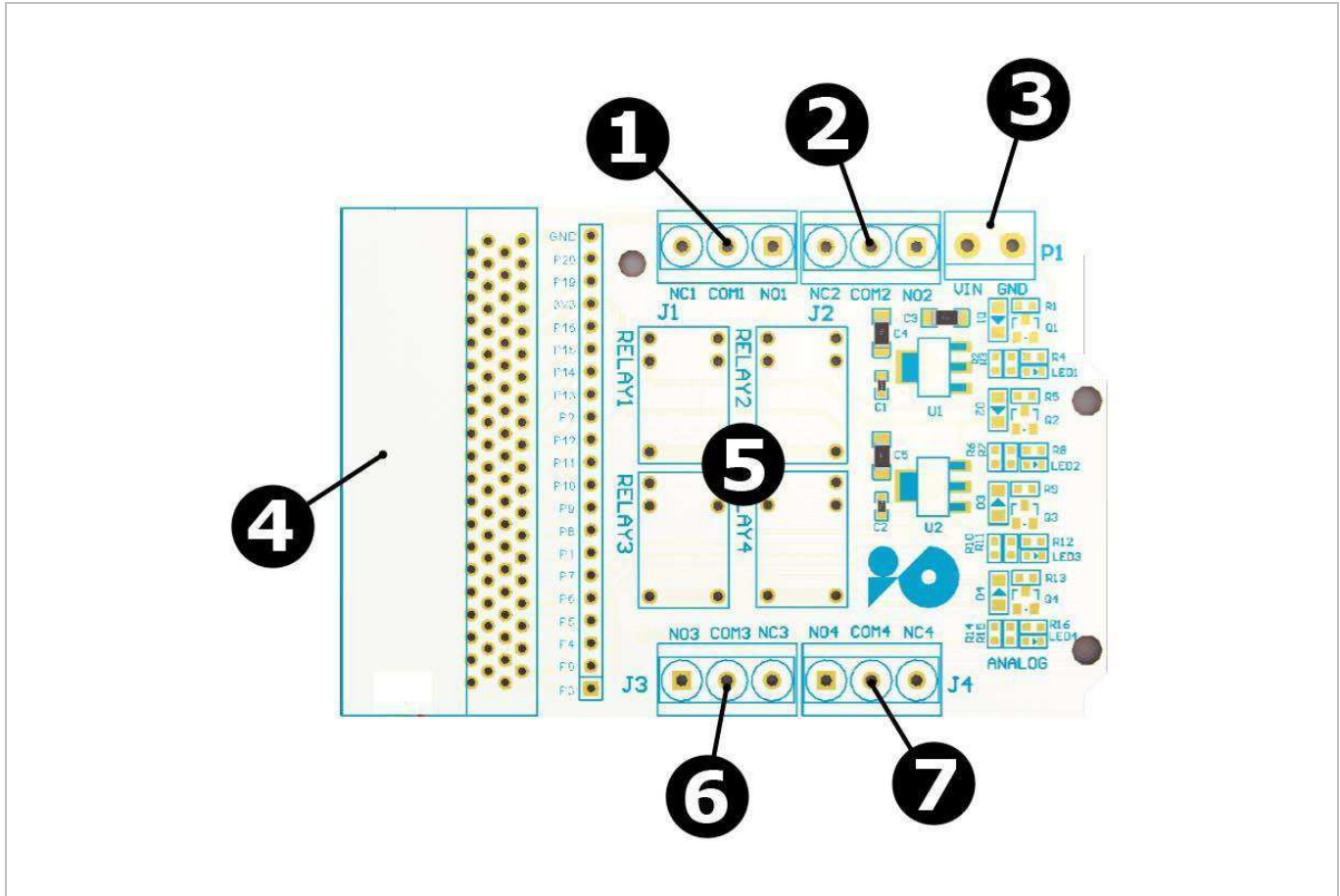
VMM400

This 4-channel relay interface board can control various appliances and other high-current equipment. It can be controlled directly by a micro:bit micro-controller.

control input current (P3,P4,P6,P7): max. 5 mA
 control input voltage: 3.3-5 VDC
 relay output: 24 VDC, 3 A (non-inductive)
 dimensions: 57 x 80 mm
 operating voltage: 5 VDC
 contacts: NO / NC

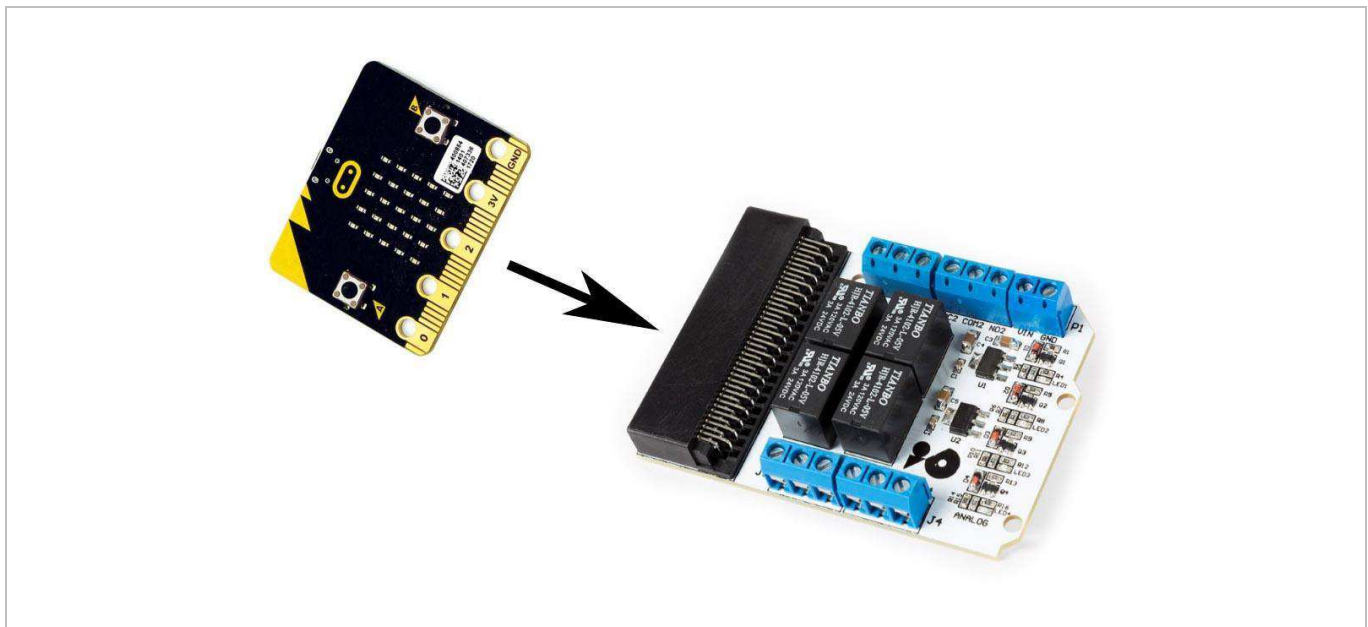
6. Pin Layout

1	P7 control
2	P6 control
3	5 VDC power
4	Pinheader for all the I/O pins of the micro:bit, including GND and 3.3 VDC
5	J1, J2, J3, J4 relay outputs
6	P4 control
	P3 control



7. Connection

1. Plug the micro:bit into your VMM400 relay board.

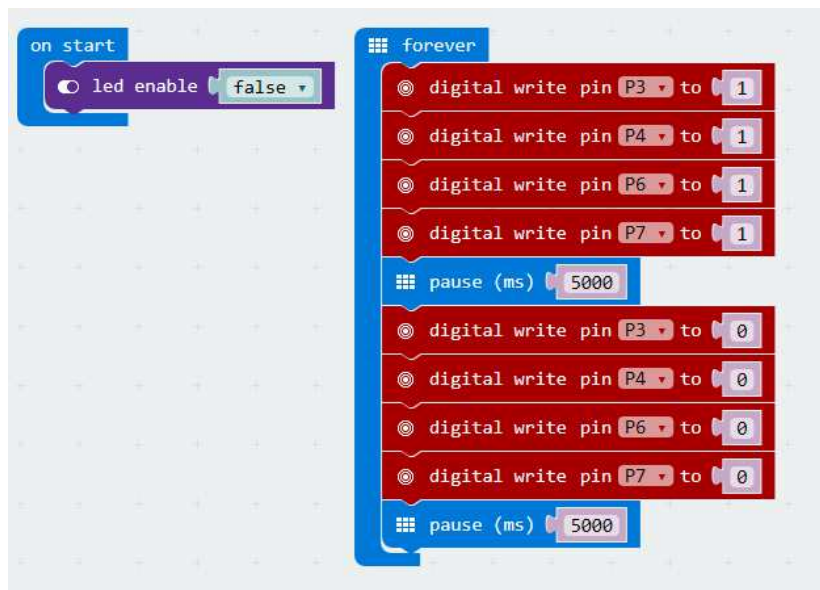


2. Connect a 5 VDC power supply to the VMM400.
3. Connect your micro:bit to your computer using a micro USB cable.
4. Now, open <https://makecode.microbit.org/> (or use the Microsoft app MakeCode for micro:bit) and try the example below. This example will turn the relay on and off for 5 seconds.
Do not forget to switch off the LED display first as P3, P4, P6 and P7 are by default used for the LED display.

8. Example 1

```
led.enable(false)
basic.forever() => {
  pins.digitalWritePin(DigitalPin.P3, 1)
  pins.digitalWritePin(DigitalPin.P4, 1)
  pins.digitalWritePin(DigitalPin.P6, 1)
  pins.digitalWritePin(DigitalPin.P7, 1)
  basic.pause(5000)
  pins.digitalWritePin(DigitalPin.P3, 0)
  pins.digitalWritePin(DigitalPin.P4, 0)
  pins.digitalWritePin(DigitalPin.P6, 0)
  pins.digitalWritePin(DigitalPin.P7, 0)
  basic.pause(5000)
}
```

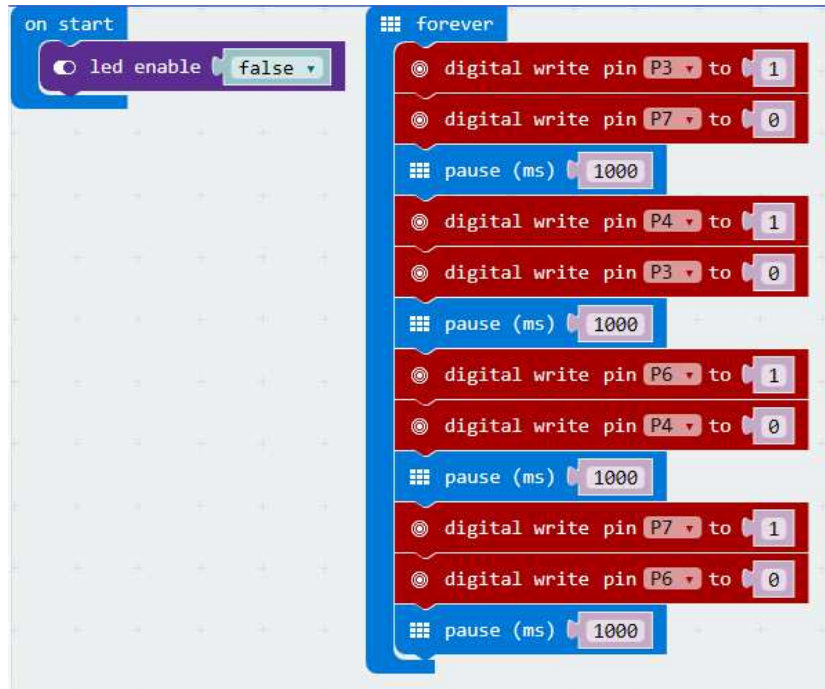
In the block editor it looks like this:



9. Example 2

Example of a simple running light.

```
led.enable(false)
basic.forever() => {
  pins.digitalWritePin(DigitalPin.P3, 1)
  pins.digitalWritePin(DigitalPin.P7, 0)
  basic.pause(1000)
  pins.digitalWritePin(DigitalPin.P4, 1)
  pins.digitalWritePin(DigitalPin.P3, 0)
  basic.pause(1000)
  pins.digitalWritePin(DigitalPin.P6, 1)
  pins.digitalWritePin(DigitalPin.P4, 0)
  basic.pause(1000)
  pins.digitalWritePin(DigitalPin.P7, 1)
  pins.digitalWritePin(DigitalPin.P6, 0)
  basic.pause(1000)
}
```



10. More Information

Please refer to the VMM400 product page on www.velleman.eu for more information.

Use this device with original accessories only. Velleman nv cannot be held responsible in the event of damage or injury resulting from (incorrect) use of this device. For more info concerning this product and the latest version of this manual, please visit our website www.velleman.eu. The information in this manual is subject to change without prior notice.

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Velleman® Service and Quality Warranty

Since its foundation in 1972, Velleman® acquired extensive experience in the electronics world and currently distributes its products in over 85 countries.

All our products fulfil strict quality requirements and legal stipulations in the EU. In order to ensure the quality, our products regularly go through an extra quality check, both by an internal quality department and by specialized external organisations. If, all precautionary measures notwithstanding, problems should occur, please make appeal to our warranty (see guarantee conditions).

General Warranty Conditions Concerning Consumer Products (for EU):

- All consumer products are subject to a 24-month warranty on production flaws and defective material as from the original date of purchase.
- Velleman® can decide to replace an article with an equivalent article, or to refund the retail value totally or partially when the complaint is valid and a free repair or replacement of the article is impossible, or if the expenses are out of proportion.

You will be delivered a replacing article or a refund at the value of 100% of the purchase price in case of a flaw occurred in the first year after the date of purchase and delivery, or a replacing article at 50% of the purchase price or a refund at the value of 50% of the retail value in case of a flaw occurred in the second year after the date of purchase and delivery.

• Not covered by warranty:

- all direct or indirect damage caused after delivery to the article (e.g. by oxidation, shocks, falls, dust, dirt, humidity...), and by the article, as well as its contents (e.g. data loss), compensation for loss of profits;
- consumable goods, parts or accessories that are subject to an aging process during normal use, such as batteries (rechargeable, non-rechargeable, built-in or replaceable), lamps, rubber parts, drive belts... (unlimited list);
- flaws resulting from fire, water damage, lightning, accident, natural disaster, etc....;
- flaws caused deliberately, negligently or resulting from improper handling, negligent maintenance, abusive use or use contrary to the manufacturer's instructions;
- damage caused by a commercial, professional or collective use of the article (the warranty validity will be reduced to six (6) months when the article is used professionally);
- damage resulting from an inappropriate packing and shipping of the article;
- all damage caused by modification, repair or alteration performed by a third party without written permission by Velleman®.
- Articles to be repaired must be delivered to your Velleman® dealer, solidly packed (preferably in the original packaging), and be completed with the original receipt of purchase and a clear flaw description.
- Hint: In order to save on cost and time, please reread the manual and check if the flaw is caused by obvious causes prior to presenting the article for repair. Note that returning a non-defective article can also involve handling costs.
- Repairs occurring after warranty expiration are subject to shipping costs.
- The above conditions are without prejudice to all commercial warranties.

The above enumeration is subject to modification according to the article (see article's manual).