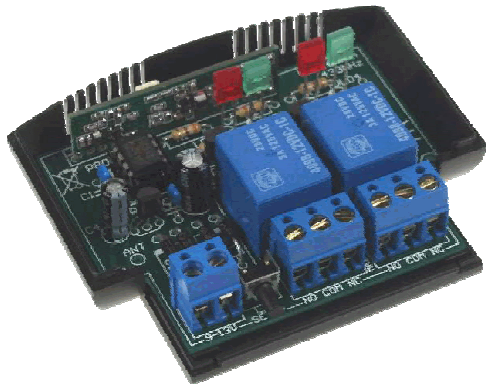


Total solder points: 89  
Difficulty level: *beginner* 1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐ *advanced*

## ONE CHANNEL DUAL OUTPUT RECEIVER

*For use with K8058 / VM118R transmitters.*



### ***K8070***

*A single transmitter key-press  
activates two independent outputs.*



A single transmitter key press activates two independent outputs. Each output can be configured as toggle, pulse or pulse with timer. This allows you to e.g. start two different timers, have a pulsed and a timed output, have two galvanically separated outputs etc.

## Features:

- ☒ easy setup and transmitter 'learning', no jumper settings
- ☒ toggle or pulse function selectable per output
- ☒ pulse function can have turn-off timer
- ☒ up to 31 different transmitters or transmitter buttons can be stored
- ☒ 'All clear' function
- ☒ LED indicators for outputs and functions
- ☒ easy fixation
- ☒ for use with : K8058 / VM118R
- ☒ onboard antenna or external antenna

## Specifications:

- power supply : 9 to 12V AC or DC / 100mA max.
- relay contact NO/NC : 3A
- 433MHz
- selectable timers per output : 0.5s, 5s, 30s, 1min, 5min, 15min, 30min and 60min
- open field range of up to 30m possible
- dimensions : 80 x 70 x 25mm / 3.15" x 2.75" x 0.98"

Velleman hereby certifies that the device K8070 meets the essential requirements and all other relevant stipulations of directive 1999/5/EG and 1995/5/EC.

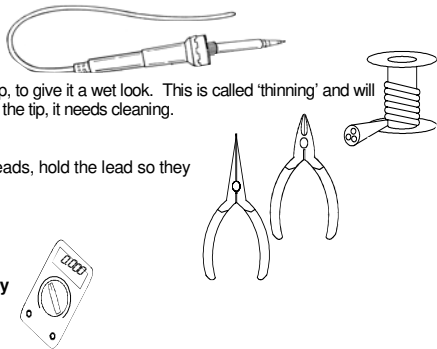
For the complete conformity declaration check out :[http://www.velleman.be/downloads/doc/ce\\_K8070.pdf](http://www.velleman.be/downloads/doc/ce_K8070.pdf)

## 1. Assembly (Skipping this can lead to troubles !)

Ok, so we have your attention. These hints will help you to make this project successful. Read them carefully.

### 1.1 Make sure you have the right tools:

- A good quality soldering iron (25-40W) with a small tip.
- Wipe it often on a wet sponge or cloth, to keep it clean; then apply solder to the tip, to give it a wet look. This is called 'tinning' and will protect the tip, and enables you to make good connections. When solder rolls off the tip, it needs cleaning.
- Thin raisin-core solder. Do not use any flux or grease.
- A diagonal cutter to trim excess wires. To avoid injury when cutting excess leads, hold the lead so they cannot fly towards the eyes.
- Needle nose pliers, for bending leads, or to hold components in place.
- Small blade and Phillips screwdrivers. A basic range is fine.



**For some projects, a basic multi-meter is required, or might be handy**

### 1.2 Assembly Hints :

- ⇒ Make sure the skill level matches your experience, to avoid disappointments.
- ⇒ Follow the instructions carefully. Read and understand the entire step before you perform each operation.
- ⇒ Perform the assembly in the correct order as stated in this manual
- ⇒ Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.
- ⇒ Values on the circuit diagram are subject to changes.
- ⇒ Values in this assembly guide are correct\*
- ⇒ Use the check-boxes to mark your progress.
- ⇒ Please read the included information on safety and customer service

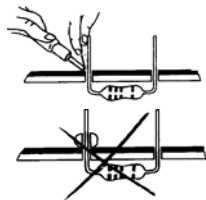
\* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

### 1.3 Soldering Hints :

1- Mount the component against the PCB surface and carefully solder the leads

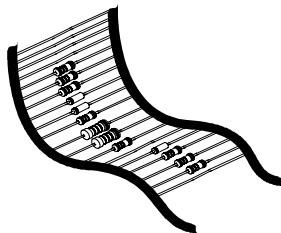
2- Make sure the solder joints are cone-shaped and shiny

3- Trim excess leads as close as possible to the solder joint



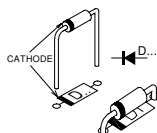
**REMOVE THEM FROM THE TAPE ONE AT A TIME !**

**AXIAL COMPONENTS ARE TAPED IN THE CORRECT MOUNTING SEQUENCE !**



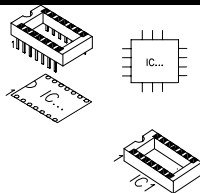
## 1. Diodes. Watch the polarity!

- ☐ D1 : 1N4148
- ☐ D2 : 1N4148
- ☐ D3 : **1N4007**
- ☐ D4 : **1N4007**
- ☐ D5 : **1N4007**
- ☐ D6 : **1N4007**

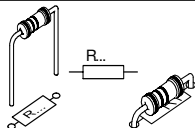


## 3. IC sockets, Watch the position of the notch!

- ☐ IC1 : 8P

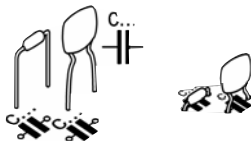


## 2. Resistors



- ☐ R1 : 390 (3 - 9 - 1 - B)
- ☐ R2 : 390 (3 - 9 - 1 - B)
- ☐ R3 : 390 (3 - 9 - 1 - B)
- ☐ R4 : 390 (3 - 9 - 1 - B)
- ☐ R5 : 47K (4 - 7 - 3 - B)
- ☐ R6 : 47K (4 - 7 - 3 - B)
- ☐ R7 : 1M (1 - 0 - 5 - B)

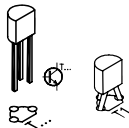
## 4. Capacitors



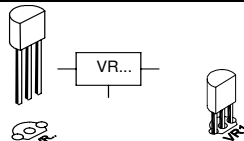
- ☐ C1 : 100nF (104, u1)
- ☐ C2 : 100nF (104, u1)

## 5. Transistors

- ☐ T1 : BC547
- ☐ T2 : BC547



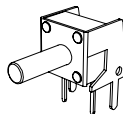
## 6. Voltage regulator



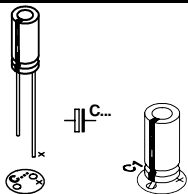
- ☐ VR1 : UA78L05

## 7. Push button

- ☐ SW1 : Select



## 8. Electrolytic Capacitor. Watch the polarity !



- ☐ C4 : 10 $\mu$ F / 16V
- ☐ C5 : 100 $\mu$ F / 25V

## 9. Terminal blocks



- ☐ SK1 : 2P



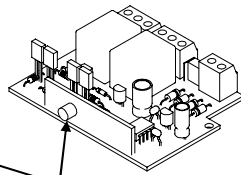
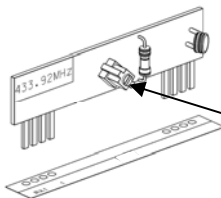
- ☐ SK2 : 3P
- ☐ SK3 : 3P



## 10. Receiver module

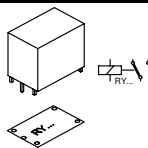
- ☐ RX1 : 433MHz.

Watch the position of the module !!!



Remark: The receiver module coil is mounted away from the IC socket (see fig.).

## 11. Relays / Relais / Relés

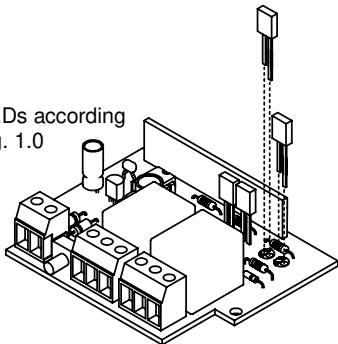


- ☐ RY1 : VR15M121C (12VDC - 3A - 1 c)
- ☐ RY2 : VR15M121C (12VDC - 3A - 1 c)

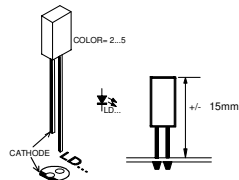
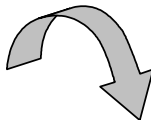
## 12. LEDs. Watch the polarity !

- ☐ LD1: 5mm Red (rectangular)
- ☐ LD2: 5mm Green (rectangular)
- ☐ LD3: 5mm Green (rectangular)
- ☐ LD4: 5mm Red (rectangular)

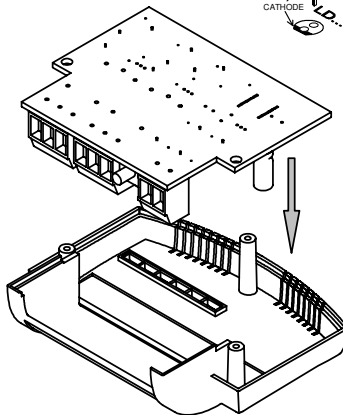
Mount the LEDs according  
to fig. 1.0



**FIG 1.0**

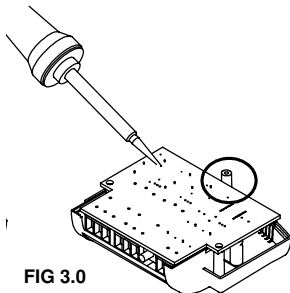


Mount the PCB with the solder side facing upwards.

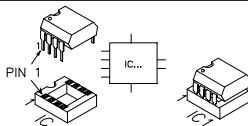


**FIG 2.0**

Position the LEDs and solder them.



### 13. IC. Watch the position of the notch!

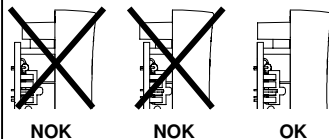


❑ IC1 :VK8070 (Programmed PIC12F629)

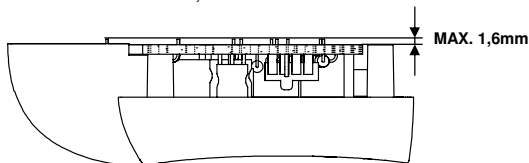
### 14. Antenna



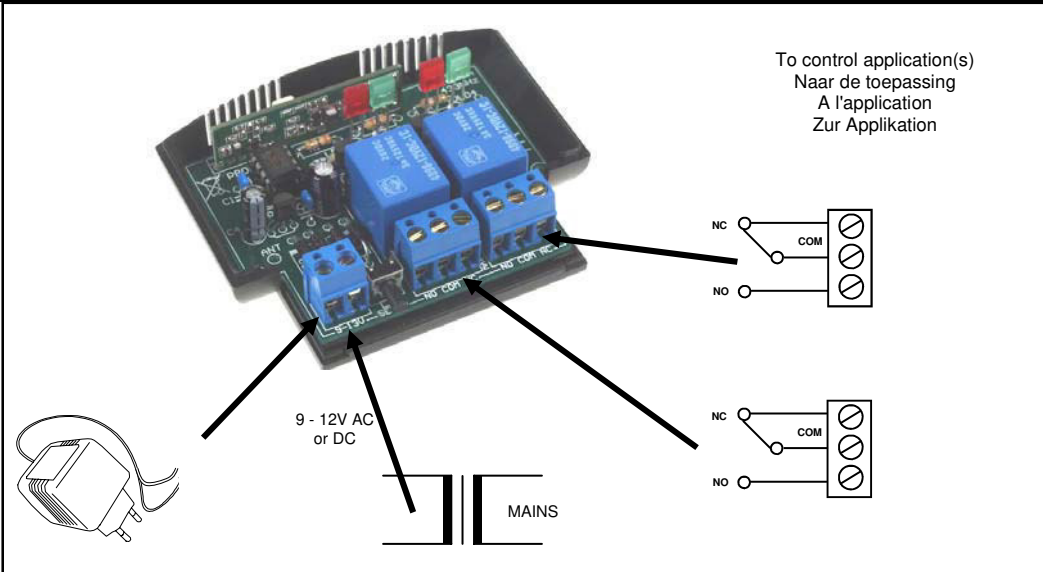
Solder a 30cm / 0.5mm<sup>2</sup> wire (option) for an improved reception quality.



Make sure that all soldered connections are not longer then 1,6mm on the soldered side.



## 15. Connection



## 16. Mounting order overview

Mount the PCB onto the lower part of the housing, see fig. 4.

Place the front and rear sticker on the housing.

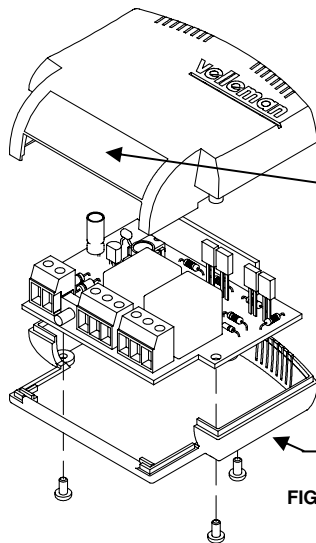


FIG 4.0

|                       |       |      |      |          |
|-----------------------|-------|------|------|----------|
| 1 CHANNEL RF RECEIVER |       |      |      | Velleman |
| MAX. 2A               |       |      |      |          |
| POWER                 | SETUP | OUT1 | OUT2 |          |



## 17. Configuration

At power-on, LD1 will flash a # of times, hereby indicating that the unit is operational. Next, LD4 will turn-on.

At first power-on, the unit will respond to channel(1)/button(1) of the K8058/VM118R transmitter. Make sure the transmitter buttons are configured as 'pulse' (check your K8058/VM118R manual).

## 18. To learn a remote(button):

1. Hold 'setup'-button. LD1 turns on.
2. Hold a remote button (1..8)
3. LD4 will light when the button has been stored
4. Release all buttons

Repeat steps 1 through 4 to learn other remote buttons or remotes.

👉 31 transmitters or transmitter-buttons can be stored.

👉 If the memory is full, both LD1 and LD4 will flash rapidly.

## 19. To remove all stored remotes from memory and to return to factory defaults

1. Turn off the power.
2. Hold 'setup'-button.
3. Turn on power. LD1 and LD4 will start flashing
4. Release 'setup' when LD1 and LD4 stop flashing

👉 This process takes about 10 seconds.

👉 If the button is released before the leds stop flashing, the memory will not be cleared.

👉 The unit will now respond to the default code only.

## 20. Configuration of left and right relay output

1. Push 'setup'-button repeatedly to configure either left relay (LD2 lights) or right relay (LD3 lights).
2. Confirm your selection with a long push (LD4 flashes 3 times). The selected relay will remain ON.
3. Push 'setup'-button a number of times, depending on the desired mode (see table). At each press, LD1 will flash a # of times, indicating the current mode.
4. Confirm with a long push (LD4 flashes 3 times). The selected relay will turn off and the unit is ready for use.

| flashes | Mode        |
|---------|-------------|
| 1       | ON/OFF      |
| 2       | 0.5s timer  |
| 3       | 5s timer    |
| 4       | 30s timer   |
| 5       | 1min timer  |
| 6       | 5min timer  |
| 7       | 15min timer |
| 8       | 30min timer |
| 9       | 1h timer    |

-  The unit will return to normal operation when left idle for 10s. The current mode will not be changed.

If necessary, repeat sequence for the remaining channel.

**Factory defaults: left relay-output: 0.5s timer right relay-output: 1h timer**

## 21. Use

Pressing a transmitter button will operate both outputs simultaneously.

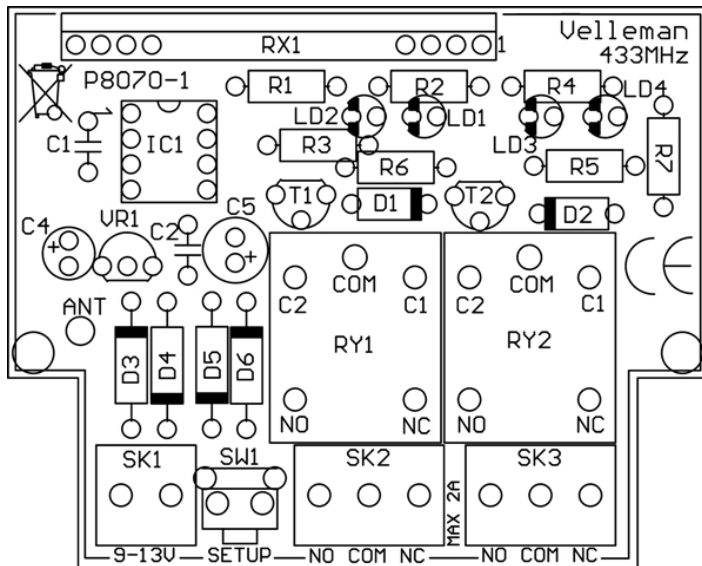
Each relay will behave according to the selected mode.

In '0.5s timer'-mode, the relay will remain on for as long as the remote button is held.

In 'ON/OFF'-mode, the relay will toggle between ON and OFF every time the remote button is pushed.



## 23. PCB





Modifications and typographical errors reserved  
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H8070IP - 2006 - ED1 (rev1.0)

