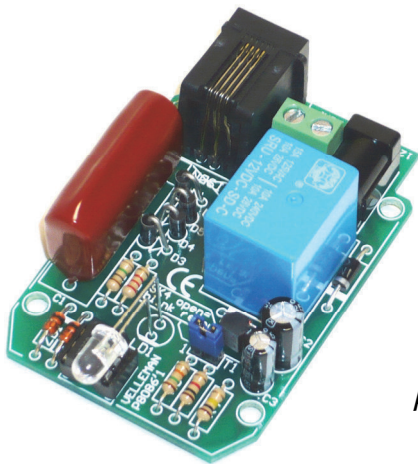


Total solder points: 61  
Difficulty level: *beginner* 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ *advanced*

# TELEPHONE RING DETECTOR WITH RELAY OUTPUT



## K8086

Simply connect in parallel with phone line.  
Accepts standard adaptor & telephone plug.

### Features:

- ☑ simply connect in parallel with phone line
- ☑ powerful led flashes when phone rings
- ☑ the unit will feature a relay output if connected to a 12VDC power supply
- ☑ relay output: continuous or on/off to the rhythm of ringing of the telephone
- ☑ complete with enclosure
- ☑ great for noisy environments, for the hearing impaired, as additional ringer, to replace existing ringer, ...
- ☑ accepts standard adaptor & telephone plug

### Specifications:

- 10.000 mcd led !
- connects to PSTN line
- RJ11 connector
- supply: 12VDC/100mA adapter (Ex. [PS1203](#))
- output Contact (NO): 1A max.
- dimensions: 80x55x35mm / 3,15 x 2,16 x 1,37"

### Includes:

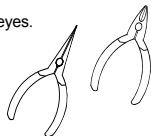
- attractive enclosure
- adhesive strips for easy fixing

## 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 rosin-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



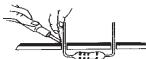
### 1.2 Assembly Hints :

- ⇒ 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, the 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

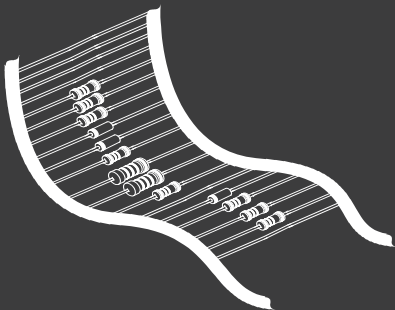


2- Make sure the solder joints are cone-shaped and shiny



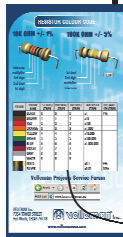
3- Trim excess leads as close as possible to the solder joint



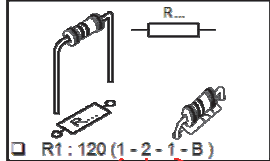


REMOVE THEM FROM THE TAPE ONE AT A TIME !

Included in  
this kit



## 2. RESISTOR

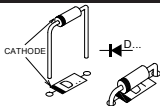


| COLOR  | COLOR NAME | 1ST DIGIT/ STRIPE | 2ND DIGIT/ STRIPE | 3RD DIGIT/ STRIPE | MULTIPLIER STRIPE | TOL. STRIPE |
|--------|------------|-------------------|-------------------|-------------------|-------------------|-------------|
| BROWN  | BROWN      | 1                 | 0                 | 0                 | $\times 10^1$     | $\pm 1\%$   |
| RED    | RED        | 2                 | 2                 | 0                 | $\times 10^2$     | $\pm 2\%$   |
| ORANGE | ORANGE     | 3                 | 3                 | 0                 | $\times 10^3$     | $\pm 3\%$   |
| YELLOW | YELLOW     | 4                 | 4                 | 0                 | $\times 10^4$     | $\pm 4\%$   |
| GREEN  | GREEN      | 5                 | 5                 | 0                 | $\times 10^5$     | $\pm 5\%$   |
| BLUE   | BLUE       | 6                 | 6                 | 0                 | $\times 10^6$     | $\pm 6\%$   |

DO NOT BLINDLY FOLLOW THE ORDER OF THE COMPONENTS ONTO THE TAPE.  
ALWAYS CHECK THEIR VALUE ON THE PARTS LIST!

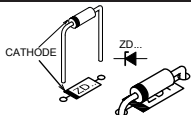
### 1. Diodes. Watch the polarity!

- ☐ D1 : 1N4148
- ☐ D2 : 1N4007

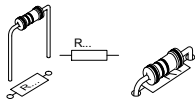


### 2. Zener diodes. Watch the polarity!

- ☐ ZD1 : 20V0
- ☐ ZD2 : 20V0



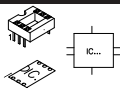
### 3. Resistors



- ☐ R1 : 1M (1 - 0 - 5 - B)
- ☐ R2 : 2K2 (2 - 2 - 2 - B)
- ☐ R3 : 15K (1 - 5 - 3 - B)
- ☐ R4 : 100K (1 - 0 - 4 - B)
- ☐ R5 : 1K (1 - 0 - 2 - B)

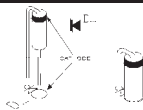
### 4. IC socket, Watch the position of the notch!

- ☐ IC1 : 6P



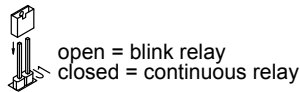
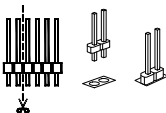
### 5. Vertical diodes. Watch the polarity!

- ☐ D3 : 1N4007
- ☐ D4 : 1N4007
- ☐ D5 : 1N4007
- ☐ D6 : 1N4007



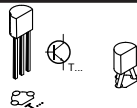
### 6. Pinheader + shunt

- ☐ SK4 : 2p

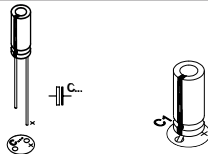


### 7. Transistor

- ☐ T1 : BC557B



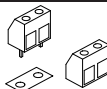
### 8. Electrolytic Capacitors. Watch the polarity !



- ☐ C2 : 100µF / 25V
- ☐ C3 : 47µF / 25V

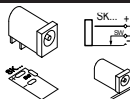
### 9. Terminal blocks

- ☐ SK3 : 2p

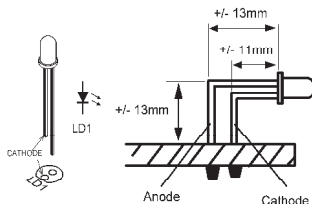


**10. DC-jack**

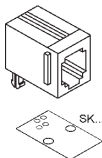
□ SK2 : 12VDC

**11. LED. Watch the polarity!**

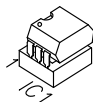
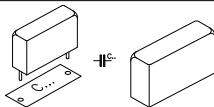
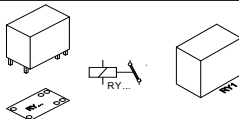
□ LD1 : 5mm (super red)

**12. Modular Jack**

□ SK1 : 4p (type RJ11)

**15. IC, watch the position of the notch!**

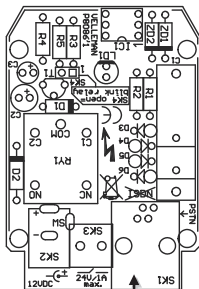
□ IC1 : 4N27

**13. Capacitor**□ C1 : 1 $\mu$ F / 275VAC**14. Relay**

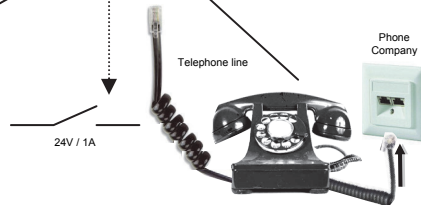
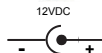
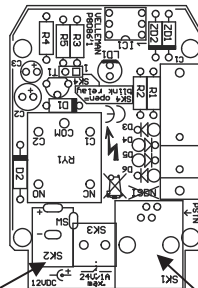
□ RY1 : VR15M121C

## 16. Connection examples

### 1. LED flash



### 2. LED flash + relay output



output mode selection

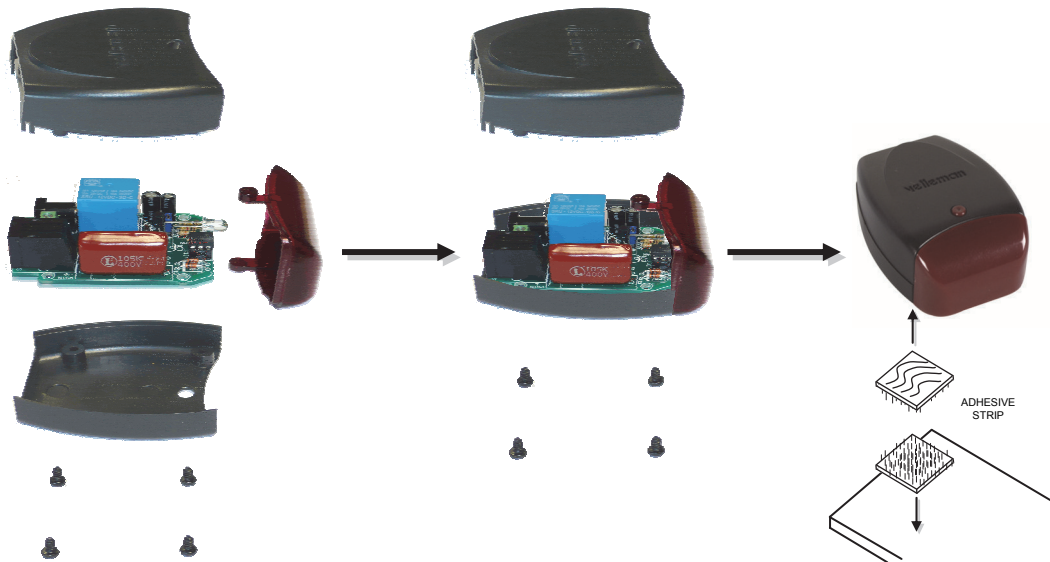


blinking  
relay output

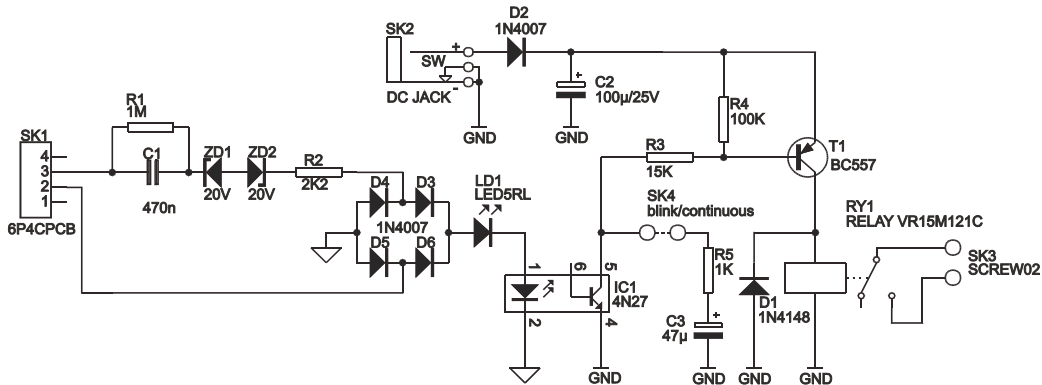


continuous  
relay output

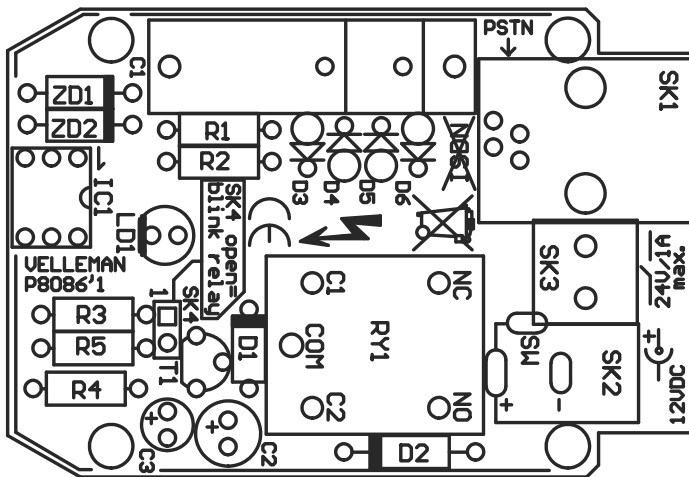
## 17. Assembly



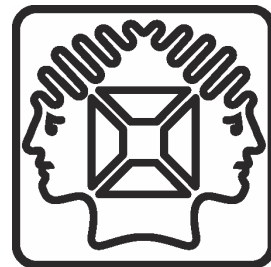
Schematic diagram.



## PCB







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Belgium (Europe)

 @velleman\_RnD

