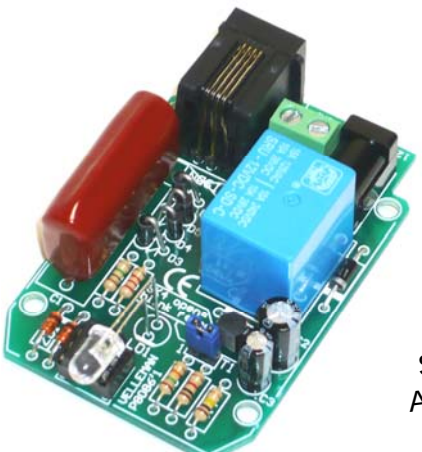
Total solder points: 61
Difficulty level: *beginner* 1 ☐ 2 ☑ 3 ☐ 4 ☐ 5 ☐ *advanced*

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 addional 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"

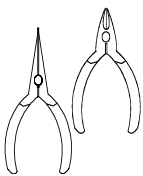
Includes:

- 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 'thinning' 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

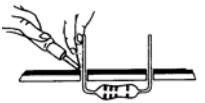
1.2 Assembly Hints :

⇒ 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

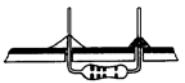
* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

1.3 Soldering Hints :

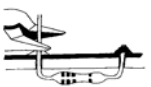
1- Mount the component against the PCB surface and carefully solder the leads



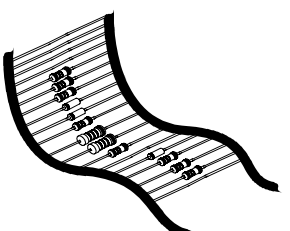
2- Make sure the solder joints are cone-shaped and shiny



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

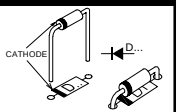


REMOVE THEM FROM THE TAPE ONE AT A TIME !



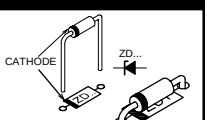
AXIAL COMPONENTS ARE TAPED IN THE CORRECT MOUNTING SEQUENCE !

1. Diodes. Watch the polarity!



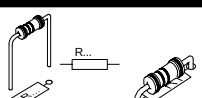
- ❑ D1 : **1N4148**
- ❑ D2 : 1N4007

2. Zener diodes. Watch the polarity!



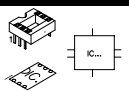
- ❑ ZD1 :20V0
- ❑ ZD2 :20V0

3. Resistors



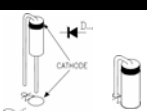
- ❑ R1 : 1M (1 - 0 - 5 - B)
- ❑ R2 : 2K2 (2 - 2 - 2 - B)
- ❑ R3 : 15K (1 - 5 - 3 - B)
- ❑ R4 : 100K (1 - 0 - 4 - B)
- ❑ R5 : 1K (1 - 0 - 2 - B)

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



- ❑ IC1 : 6P

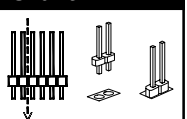
5. Vertical diodes. Watch the polarity!



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

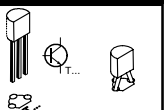
6. Pinheader + shunt

- ❑ SK4 : 2p



open = blink relay
closed = continuous relay

7. Transistor

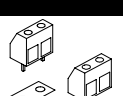


- ❑ T1 : BC557B

8. Electrolytic Capacitors. Watch the polarity !

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

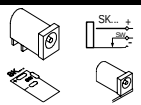
9. Terminal blocks



- ❑ SK3 : 2p

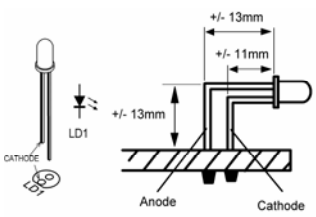
10. DC-jack

❑ SK2 : 12VDC

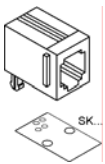


11. LED. Watch the polarity!

❑ LD1 : 5mm (super red)

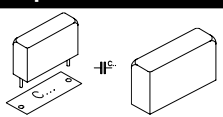


12. Modular Jack



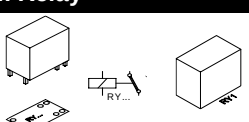
❑ SK1 : 4p *(type RJ11)*

13. Capacitor



❑ C1 : 1µF / 275VAC

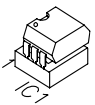
14. Relay



❑ RY1 : VR15M121C

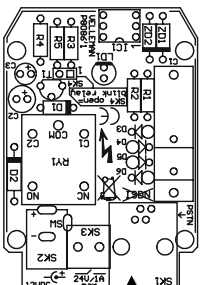
15. IC, watch the position of the notch!

❑ IC1 : 4N27

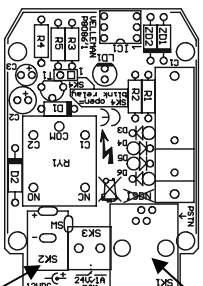


16. Connection examples

1. LED flash



2. LED flash + relay ouput

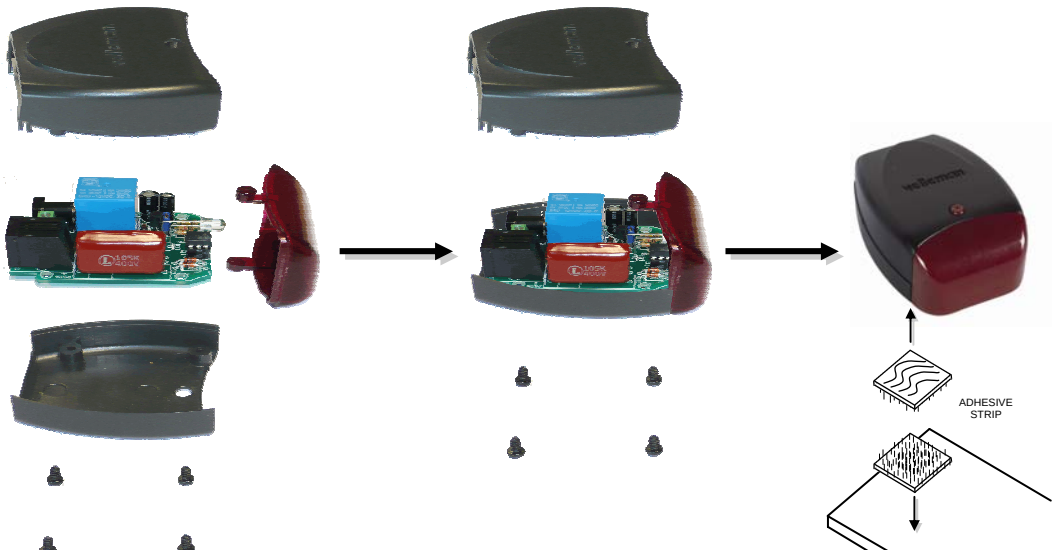


output mode selection

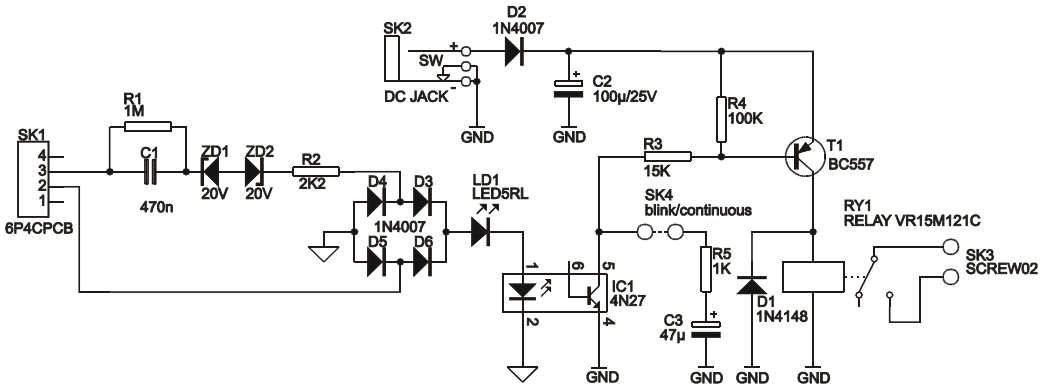
blinking relay output

continuous relay output

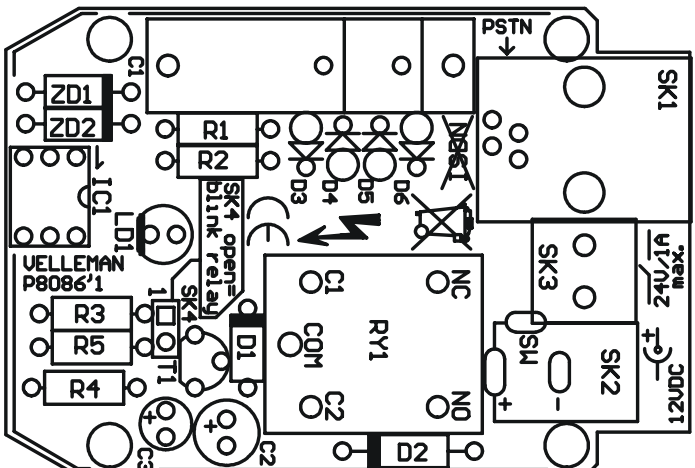
17. Assembly



Schematic diagram.



PCB


PSTN
SK1
ZD1
ZD2
C1
R1
R2
IC1
LD1
D3
D4
D5
D6
VR1
SK4 open=
blink relay
VELLEMAN
P8086'1
SK4
R3
R5
R4
T1
D1
C3
C2
D2
RY1
C1
NC
COM
C2
NO
SK3
SK2
SW
12VDC
12V/2
max.

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