QUASAR ELECTRONICS KIT No. 8122 - TELEPHONE RINGER RELAY

General Description

The telephone has become one of the indispensable devices in everyday life. Its use has lifted the barriers of communication and brings people together instantly regardless of the physical distance between them.

In many cases the telephone is placed in workshops, open spaces or far away from the person who must hear the ringing and take the call. In these cases if no one hears the ringing the call is not answered and the advantage of using the telephone is lost.

A solution to this problem is offered by the simple circuit you are about to build which is a relay that becomes activated every time the telephone rings. It is then very easy to connect another device that will give a signal that the telephone is ringing to advice you.

As the relay’s contacts are completely isolated from the telephone lines you can safely use a 230Vac lamp which will turn on and off with the telephone’s ringing, a large electric bell that can be heard over a distance or above the ambient noise or any other device that you see fit for the purpose.

Technical Specifications – Characteristics

- Working voltage: ....... Supplied by the telephone line
- Current drawn: .......... Supplied by the telephone line
- Relay ratings: ............ Up to 230Vac or 28Vdc @ 3 Amp maximum
- Small size
- Simple construction and operation
- Can be left permanently on the telephone line
- Does not affect normal telephone operation

How it Works

The circuit is connected in parallel with the telephone line (lines 2 and 5)
When the telephone rings the capacitors C1, C2, C3 & C4 become charged. These capacitors are connected in parallel for greater capacity, and they block DC voltages from the rest of the circuit while they let the AC which produces the ringing to pass through them.

This AC voltage is rectified by the rectifier bridge and filtered by the capacitor C5. It is then applied to the relay which is activated closing the contacts between the points 1 and 2 of the circuit. (The relay is a change over type and while it is at rest there is a closed circuit between points 2 and 3. When it is energised this contact is broken and the circuit between points 1 and 2 is closed). Using the appropriate set of contacts you can connect almost any device, in any configuration, to be operated by the ringing of the telephone.
**Construction**

The components of the telephone ringer relay are few and you should have no difficulty in building the circuit. Solder the components into the board in ascending height order. The only thing that you should be careful about during the circuit’s construction is the correct orientation of the electrolytic capacitor and the diodes.

Make a careful inspection of the board, clean off any solder flux residues and your circuit is ready.

To use the circuit connect in parallel with the telephone line across points 4 and 5 and use the relay contacts as a switch for the bell, lamp, or siren that you want to activate by means of the circuit. (For more details see the practical diagram showing how to connect the device with the telephone line and the external bell). If when you connect the relay across the line you find that your telephone appears to be engaged then simply reverse the connections at points 4 and 5 on the circuit board and the problem will be solved.

**Warning**

Quasar Electronics kits are sold as standalone training kits.
If they are used as part of a larger assembly and any damage is caused, our company bears no responsibility.

While using electrical parts, handle power supply and equipment with great care, following safety standards as described by international specs and regulations.

The telephone exchange belongs to the state or some public utility monopoly and in order to ensure its smooth operation there are certain limitations regarding what you can connect to your telephone line. Please enquire locally to make certain that you are not breaking any regulations before using this device. Quasar Electronics Kit shall not be held responsible for any illicit use of any devices supplied.

**If it does not work**

Check your work for possible dry joints, bridges across adjacent tracks or soldering flux residues that usually cause problems.
Check again all the external connections to and from the circuit to see if there is a mistake there.
- See that there are no components missing or inserted in the wrong places.
- Make sure that all the polarised components have been soldered the right way round.
- Make sure the supply has the correct voltage and is connected the right way round to your circuit.
- Check your project for faulty or damaged components.
If everything checks out and your project still fails to work, please contact us for information on our Get-You-Going service.
Circuit Diagram

Parts List

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 – C4 *</td>
<td>1uF 100v 10% Metal. Poly Capacitor</td>
<td>4</td>
</tr>
<tr>
<td>C5</td>
<td>2u2 63V Electrolytic Capacitor</td>
<td>1</td>
</tr>
<tr>
<td>D1 – D4</td>
<td>1N4004 diode</td>
<td>4</td>
</tr>
<tr>
<td>RL1</td>
<td>24V Coil Relay</td>
<td>1</td>
</tr>
<tr>
<td>X1</td>
<td>2-pole screw terminal block or RJ11 PCB connector</td>
<td>1</td>
</tr>
<tr>
<td>X2</td>
<td>3-pole screw terminal block</td>
<td>1</td>
</tr>
<tr>
<td>PCB</td>
<td>8122v2</td>
<td>1</td>
</tr>
</tbody>
</table>

* Total capacitance for C1 to C4 is 4-6uF. We may supply a different combination of capacitors to suit.

Ordering

For pricing info and online ordering please visit:

http://www.quasarelectronics.co.uk/8122.htm

For further info please contact us by e-mail:

mailto: sales@quasarelectronics.co.uk

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