

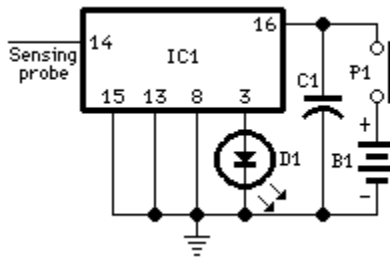
# Live-line Detector

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**Detects the presence of a live mains conductor**  
**Minimum parts counting**

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## Circuit diagram:



## Parts:

C1\_\_\_\_\_100nF 63V Polyester or Ceramic Capacitor

D1\_\_\_\_\_Red LED (any type)

IC1\_\_\_\_\_4017 Decade counter with 10 decoded outputs IC

P1\_\_\_\_\_SPST Pushbutton

B1\_\_\_\_\_3V Battery (two 1.5V AA or AAA cells in series etc.)

Sensing probe\_\_3 to 15 cm. long, stiff insulated piece of wire

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## Circuit operation:

If the unit is brought close to a live conductor (insulated, and even buried in plaster) capacitive coupling between the live conductor and the probe clocks the counter, and causes the LED to flash 5 times per second, because the 4017 IC divides the mains 50Hz frequency by 10.

When remote from a live line, the unit stops counting, the LED resulting permanently off.

## Notes:

- | Sensitivity can be varied using a more or less long sensing probe.

| Due to 3V operation, the LED's current limiting resistor can be omitted.

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