

# Re: AC Proximity Detector

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- *From:* Robert Baer <[robertbaer@xxxxxxxxxx](mailto:robertbaer@xxxxxxxxxx)>
  - *Date:* Wed, 05 Sep 2007 00:33:55 -0700
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monolog99@xxxxxxxxxx wrote:

Hi,

Out of curiosity – how do those hand held AC proximity sensors work ? (e.g. the pen sized devices that you hold near to a live mains wire which light up when AC is present). Is there an off the shelf IC that you can purchase to make one yourself ? Anyone have a circuit diagram for one ?

Reason for asking, I want to build an electronic circuit to detect the presence of 240v in a wire – without disturbing the wire.

Many thanks,  
Tim.

Very simple, they use CMOS logic where the first (inverting) gate is biased in the linear region with a high value feedback resistor.

That makes the input sensitive to small signals that get amplified by that gate; the output is then passed to the second stage which amplifies it more and saturates (signal swings from ground to supply voltage).

That signal swing can be detected by another gate, which can drive an LED.

I have seen three variations of this, and one of them had an adjustable sensitivity.

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