

Snail Mail Detector

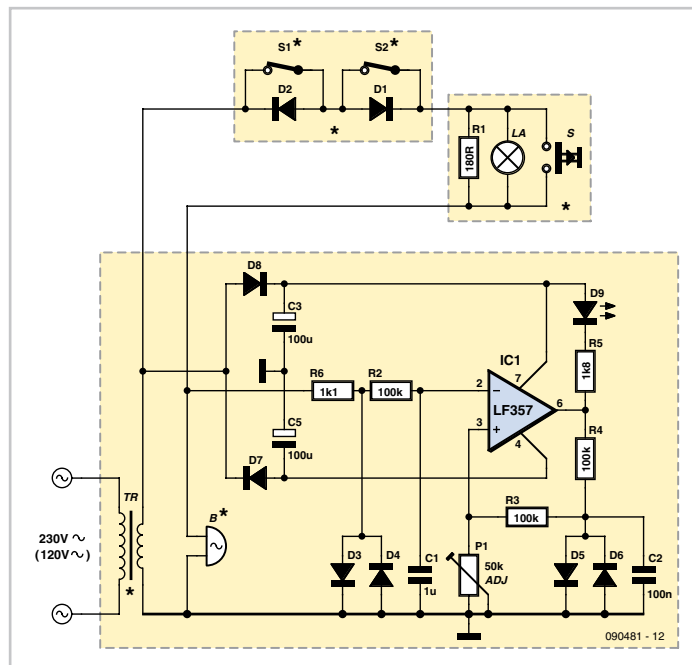
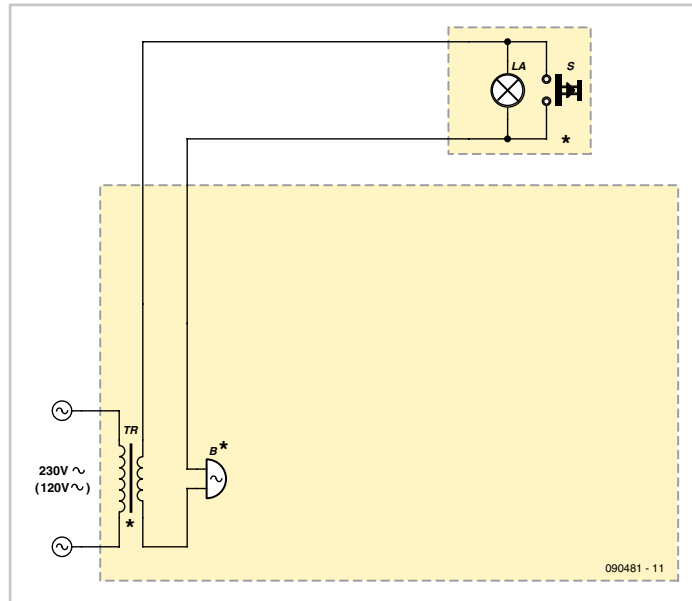


Philippe Temporelli (France)

Since his letter-box is outdoors and quite some way from the house, the author was looking for a simple means of knowing if the postman had been without having to go outside (contrary to popular belief, the weather isn't always fine in the South of France). Circuits for this kind of 'remote detection' come up regularly, but always involve running cables between the letter-box and the detection circuit in the house. Seeking to avoid running any extra cables, the author had the idea of using the existing cables going to the doorbell, conveniently located adjacent to his letter-box.

The letter-box has two doors: one on the street side for the postman, and one on the garden side for collecting the post. A microswitch is fitted to the street-side door, to light an indicator in the house showing that the postman has been. A second microswitch is fitted to the door on the garden side, to turn off the indicator once the post has been collected. The only difficulty then remains to connect these detectors to a remote circuit in the house that remembers whether the postman's been or not.

The idea was to use the alternating half-cycles of the AC signal on the cable going to the doorbell to transmit the informa-



tion, according to the following logic:

- Both half-cycles present: no change in the status of the mail detector.
- An interruption (even brief) of one half-cycle: indicator lights permanently.
- An interruption (even brief) of the other half-cycle: the indicator goes out.

Note that the signal is tapped off across the doorbell coil via R6 and the pair of diodes connected in inverse-parallel (to limit the signal, particularly when the bell is rung). The signal is then filtered by R2/C1, before being used by IC1, which is wired as a comparator with hysteresis. The trigger threshold is adjusted by P1, using a pair of inverse-parallel diodes as a voltage reference (positive or negative according to the output state):

For the detection to work, there has to be continuity in the bell-push circuit — this is generally ensured by the little lamp illuminating the bell-push. Resistor R1 is added just in case the lamp is blown or not present.

To keep things simple, the circuit is powered directly from the doorbell transformer itself (230 V / 8 V). The author managed to fit the little circuit within the doorbell unit, with the LED poking through a hole in the casing so it is readily visible in the hall of his house.

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