

FREEZER ALARM

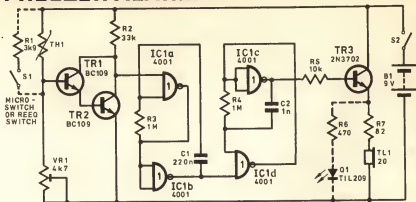
THE unit was designed for low cost of construction and to be unobtrusive when in use. Current consumption in the quiescent state is around 0.5 mA.

The temperature sensor is a rod thermistor whose resistance at -25°C is around 14k. Perhaps a bead type would be more sensitive (and more expensive) but hysteresis introduced by the relatively large thermal inertia of the rod allows the freezer to be open for several minutes for loading without triggering the alarm.

Super alpha pair, TR1 and TR2 provide a sharp trigger for IC1a. IC1a and 1b form a gated astable with a duty cycle between 2 and 4 seconds. The output pulses of IC1a and 1b gate a second astable formed by IC1c and 1d. This astable generates a pulsed output of several hundred hertz.

TR3 is driven via a 10k resistor by the output from IC1. The transducer is a telephone earpiece which is just as effective but much cheaper than a miniature loudspeaker.

The thermistor is located at the top of the freezing compartment and left to cool for an hour. VR1 is then adjusted so that the alarm is triggered by heat from a finger on TH1 for about 10 seconds.



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If the freezer is in a remote location such as a garage the transducer may be connected by twin flex to the house. The alarm unit should be located beside the freezer.

A burglar alarm facility (dashed) can be added by wiring a microswitch or magnet operated reed switch in parallel with the thermistor. This switch closes when the freezer top is opened.

The on/off switch is a shorting plug

which is removed when the freezer is being defrosted. The plug is mounted on the top of the case to give a clear visual indication that the alarm is disabled. The plug would also be removed before loading or unloading when the freezer is located outside the house.

R. Mackay,
Grangemouth,
Scotland.