

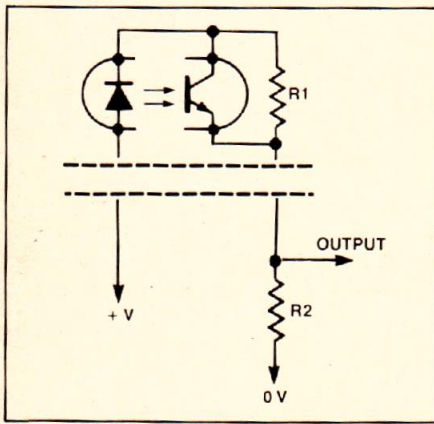
TECH TIPS

Two wires for opto-switch F. Arfort

Here's a simple way to run two wires instead of four to a remote opto-switch, as in the case of a wind speed indicator which provides pulses proportional to the rotational speed of a perforated disc.

An opto-coupler consisting of a LED and a phototransistor, either of the packaged variety or made from discrete devices, normally requires four connections. However, twin-pair cable is common, cheap and convenient and it's more economical (and more elegant) to use two wires rather than four for a remote sensor. The further away the sensor may be located from the indicator, the more attractive a two-wire system becomes.

In the circuit, resistor R1 provides a 'starting' current for the LED. Current through R1 and R2 will provide a certain dc level at the output when the path between the LED and phototransistor is blocked. When the path is unblocked, the phototransistor saturates, virtually shorting out R1, thus providing more current through R2, increasing the output dc level. This change can be sensed and used as required.



Fuse fail indicator R.N. Sinclair

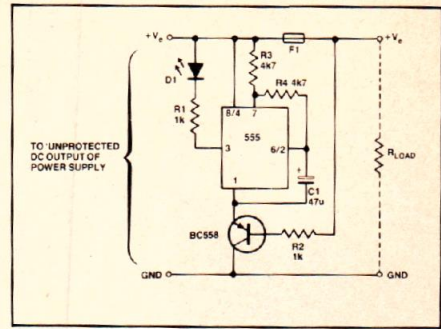
This circuit indicates an open circuit fuse by flashing the LED D1.

The circuit is based around the popular 555 timer IC which is arranged as a multivibrator with its frequency/period determined by C1, R3 and R4. R1 is the current limiter for D1.

When the fuse is intact, the BC558 is off but when the fuse fails and there is an open circuit the BC558 switches on, supplying power to the input of the 555 (pin

1). A load must be present to switch the transistor on and consequently the LED.

The fuse fail indicator must not be used when the power supply is greater than 15 V.



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