

Simple 'flash' type A/D converter

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The LM3914 dot/bar LED driver is put to use in this circuit to form the basis for a so called 'flash' type analogue-to-digital converter. This device (IC1) will send one of its ten comparator outputs low in response to a voltage applied to its input. Which output will go low is determined by that voltage. The outputs of the LM3914 are fed to the inputs of a 9-line to 4-line BCD priority encoder (IC2), the outputs of which are inverted by IC3 and taken to the inputs of a BCD to 'I'-segment decoder

(IC4). If a voltage is applied to the input of IC1, one of its outputs will go low (as stated before-hand) which, in turn, sends one of IC2's inputs low and its 4-bit BCD equivalent will be set on IC2's output. This is then decoded to 7-segment format, by IC4.

Full scale deflection can be adjusted by RV1. As there are ten outputs from IC1 and only nine inputs of IC2, a LED is connected to the tenth output of IC1 and this effectively functions as an over-range indicator.

The LM3914's outputs change linearly, but if logarithmic changes are needed

the LM3915 could be used. It must also be noted that for a full scale deflection of say 12 volts, each output will only change state when the voltage on its comparator input rises at least 1.2V above the previous comparator's threshold.

Despite this limitation the circuit could be used for joystick controls (two circuits per stick, leaving out IC4) for computer games, photo print meters, thermometers (where only a scale and not the exact temperature is required); in fact, anything requiring a noncritical one-digit readout from an analogue input.

