

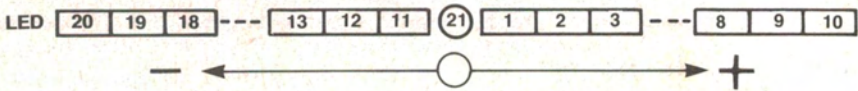
Centre zero LED bar/dot meter

D.H. Dawes
Granville NSW

THIS CIRCUIT drives twenty LEDs with a single bar/dot driver. Ten LEDs (green) are for a positive input signal and ten LEDs (red) for a negative input signal. A yellow LED, which is lit permanently, gives the centre zero indication. The LEDs would, for best effect, be mounted on a panel as shown below:

switching off Q3 and switching on Q1, which enables LEDs 11-20. As there is no gain in the absolute value amplifier, the full-scale reading is equal to that set by the internal reference of IC3. This means that the full-scale value of this circuit is about ± 1.2 V. This value can be altered by conditioning the required

CENTRE ZERO BAR/DOT METER



When used in the bar mode, the bar of light elongates to the left for an increasing negative signal and to the right for an increasing positive signal.

The circuit runs from a single 12 Vdc supply. A 5 V regulator is included, which serves both to power the LEDs and to provide a reference line for the positive and negative input signals.

IC1 is connected as a simple (but effective) 'absolute value' amplifier. This drives the LM3914, which will only accept positive input signals. IC2 is connected as a comparator, and serves as a polarity indicator. When the input is positive the output of the comparator is high, which drives Q3 via ZD1 and Q2, enabling LEDs 1-10.

When the input is negative, the output of the comparator swings low,

input signal. The LM3915 may be substituted for the LM3914 if a logarithmic, rather than a linear, scale is desired.

This circuit can, apart from its obvious applications as a general centre zero meter, be used to display the difference between two voltage levels, e.g: a reference level and an unknown level. In this application the position on the circuit marked 'A' would be separated from the +5 V line and would be connected to the reference voltage. The unknown voltage to be compared would be connected to the input terminal. Both the reference and the unknown would be referred to 0 V. The only limitation is that the reference voltage should be between 4 and 8 volts above 0 V when using a 12 V supply.

