Circuit & Design Ideas

Computer drive for the EA EPROM Programmer

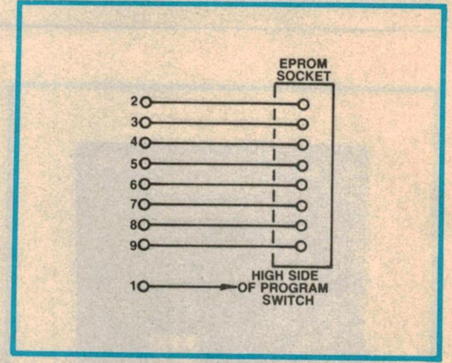
The following is a modification to the Free-standing EPROM Programmer (EA, January 1982)) to enable it to be driven from a Centronics printer port. Included are program listings for the VZ200/300 and TRS80 Models III and IV. A printer interface is required for the VZ200/300.

The hardware modifications are quite simple and mainly involve connecting the Centronics socket to the D0-D7 pins on the EPROM socket and to the high side of the program switch as shown in Fig.1. In addition, the copper tracks at pin 1 of IC5 and pins 1 and 2 of IC4 should be cut and a DPDT switch wired across the breaks.

This new switch allows the EPROM programmer to be switched to either external drive mode or to stand-alone mode.

To operate with computer drive, set the added switch to EXTERNAL, set switch S1 to WRITE, S2 to AUTO INC., and S3 to PROGRAM READY. Now load and run the program. You will have to enter the start address for data to be sent to the programmer and enter the end address.

The program takes care of most user mistakes. However, if data being sent to the EPROM is long enough to cause the address counter to reset while data is still being sent, all data sent after reset will be programmed into EPROM address 000.



Rick Buhre,
Mackay, Qld.

$20

Digital speedometer for cars

This digital speedometer circuit uses a 74C926 4-digit counter chip to count pulses derived from a sensor mounted on the car's driveshaft.

The sensor consists of an MEL12 phototransistor, a slotted disc and an infrared LED (CQY89). The slotted disc interrupts the beam between the LED and the phototransistor, thus providing a pulse train with frequency proportional to the vehicle's speed. This pulse train is then gated through to the clock input of the counter (IC3) via Schmitt trigger IC1a.

IC2, a 4017 decade counter, provides the latch and reset signals for IC3. The Q0 output of IC2 also provides the gating signal to IC1a via inverter IC1b.

Clock signals for IC2 are derived from Schmitt trigger oscillator IC1c. On the first clock pulse, Q0 goes high and gates off IC1a. On the next clock pulse Q0 goes low and Q1 goes high, enabling IC1a and resetting IC3.

Q1 subsequently goes low again and IC3 counts the number of pulses from the driveshaft sensor until Q0 goes high some eight clock pulses later. This gates off IC1a as before. The count is then latched when Q0 subsequently goes low again and is displayed on a 3-digit LED readout.

The displays are FND560 (or equivalent, eg. FND500, LTS543R) common cathode types and are switched by transistors Q1 to Q3. The display segments are driven via 39 ohm current-limiting resistors.

Power for most of the circuit is derived from a 3-terminal 5V regulator. Note, however, that the infrared LED is run directly from the +12V supply. The circuit is calibrated by adjusting the 100k trimpot on pin 4 of IC1c.

Finally, note that the sensor disc should have at least six slots otherwise the sampling time of the counter will be excessive.

Brett Harvey,
Southport, Qld.

$30