

# 60 mini EPROMmer

the simple programming circuit

Fortunately the prices for widely available EPROMs is falling considerably. It might therefore be worthwhile to construct complex logic functions with EPROMs instead of the normal digital ICs (gates, flipflops, and so on). This would make the construction of the circuit much more compact and straightforward.

The EPROM 2716 contains 11 inputs (address lines A0...A10) and 8 data lines (D0...D7), which are connected as inputs during programming and as outputs for other functions. Therefore it is possible to program complex logic functions. For example a programmed EPROM can be used as code converter. This leaves us with the problem of finding a suitable programming device. It is rather expensive to build or buy a programmer, if it is only to be used occasionally.

In this case a straightforward circuit will suffice, with which the associated data of the logic functions can be stored in the EPROM quite easily. The circuit described in this article offers this possibility. Any program can be programmed step by step with the aid of this circuit.

There is one crucial point which has to be considered, when using EPROMs and that is the access time. The operation speed of the complete circuit depends on it. The circuit must be constructed in the conventional manner, using gates, flipflops and so on, if the EPROM is too slow, due to the access time, for a certain application.

The next question is what is to be programmed? First, switch S21 must be set to position 'b'. In this case, pin 21 of the EPROM will be connected to the programming voltage and the data connections D0...D7 are connected as inputs. The corresponding data can now be set bit by bit by means of switches S1...S8. An open switch then stands for logic 1. After that, the corresponding addresses can be set with the aid of switches S9...S19. Again an open switch denotes a logic 1. Once the correct data and address bits have been selected, depressing S20 is sufficient to transfer them into EPROM. The LED D9 lights to indicate the programming time.

Obviously some form of check is necessary, when the complete program is stored in EPROM, because the readers who have programmed

by hand, will agree that it is very easy to make an error. Switch S21 in position a, in order to check the program.

The LEDs D1...D9 will now indicate which data is stored in the address set with S9...S19.

A stabilised voltage of 5 V and 400 mA will be enough to supply the circuit, and a 30 V at 30 mA supply is sufficient to produce the programming voltage.

