

PROGRAMMER

Henry Budgett

From the land of Longhorn comes an aid to all micro users who can't get fluent in Hex.

Can you work out the sum of two four-digit Hex numbers in the time it takes to read this sentence? If you're anything like me you'll write them down, think a bit and, probably, still get it wrong at the first attempt. Octal I can manage, but Hex still gets my brain into an overheated state. The usual solution to these mental nightmares is to resort to a set of tables, or to write a nice little program to do it all for you, but, for a couple of years now, there's been an alternative solution. Called the TI Programmer it looks and acts just like an ordinary, slightly old fashioned calculator but it has a very, very powerful plus, what else could you expect from Texas Instruments?

Functioning Digits

As well as acting as a conventional, decimal, four-function calculator with memory and constant, the device will work equally well in both octal (base 8) and Hex (base 16) arithmetic. It can even cope with a mix of all or any of the three, because as soon as you select a new base it converts all the currently displayed information to the new base. Indeed, any number stored in the memory, or as a constant, is converted as well so you can't muddle the machine.

To obtain negative numbers for Hex and octal calculations the device uses two's complement arithmetic, just like your micro. One's complement is also available, this is used as the NOT in logical analysis.

Although the Programmer can cater for decimal fractions, (floating points to you) it cannot perform fractional Hex or octal, one has to keep track mentally or choose a suitable multiplier and remember where the point went to.

Just as numbers can be manipulated in the accumulator of a microprocessor so can numbers in the "accumulator" of the Programmer. You can shift Hex and octal numbers both left and right and perform logical AND, OR, XOR and NOT operations on the binary bit pattern stored. The keytops of digits 0 to A are labelled with their binary bit pattern, a useful aide memoir.

Mind Of Its Own

As well as being exceedingly versatile the Programmer is by no means easily fooled, especially by clumsy digits. It has the infuriating habit of totally ignoring you if you are trying to enter, for example, Hex when in decimal mode. One doesn't like to admit mistakes, especially to a little black box!

The Programmer is equipped as standard with a re-chargeable battery pack and these are protected from forgetful users by a display and power turn-off circuit. After about a minute of inactivity the display is replaced by a running dot and, after a further ten minutes or so it shuts off completely. One can recover from the blanked stage by pressing any key, the equals is probably a nice safe bet.

As an example of the thought that has gone into the Programmer one can disable this turn-off, ideal when using the charger as an adaptor, by pressing "0.= " at the same time. When you turn off, the device reverts to the normal mode.



The TI Programmer with a close-up look at its clearly labelled keyboard.

The Programmer is supplied with the re-chargeable battery, a carrying case, manual and the charger/adaptor. The documentation is adequate, there is not, after all, too much to explain and the use of examples throughout is helpful.

Summary

Because of the increase in the size of its potential market place it is initially surprising to find that the price tag on the Programmer is unchanged from its launch, some two years ago. However, inflation has risen since then, so the price, in real terms at least, has probably dropped in proportion to the size of the market. At around £50 it still represents reasonable value for money and is certainly a recommended item for small computer owners who are going to embark upon serious programming.

Like all labour saving gadgets it proves indispensable once used. One suspects, however, that the Japanese might soon wake up to the fact that they are missing out on a slice of the market and then the prices will come right down, solely because of the two year technology gap.

A summary of the machine's salient features is given in Table 1 but the best way to assess its value is to try it and most good calculator stockists should be able to supply it.

- Conversion between any of three bases (decimal, octal & Hex)
- Full floating decimal calculations
- Independent memory with summation
- Fifteen sets of parentheses possible
- Logical operations at bit level on Hex and octal numbers
- Constant function
- Bit shift on both Hex and octal numbers
- Auto power saving features with optional cancel.

Table 1. Main features of the TI Programmer.