



I IDENTIFICATION

This is a method whereby the computer determines the identity of a user. *Identification* is necessary in multi-user and network systems, as well as micros, to prevent unauthorised users gaining access to confidential files and documents. The process generally consists of a password or coded value being entered to enable the user to 'log on' to the computer. This is then followed by a personal password, which allows users access to their own personal files.

However, because this system has proved to be vulnerable to 'hacking' — unauthorised entry — both users and manufacturers have been searching for a more foolproof method of identification. One such method, being developed by Dr Kuno Zimmerman of the University of Missouri-Columbia in the US, requires the user to inscribe a signature on an electronic pad. Significant points of the signature will then be compared with the version stored in the computer's memory. As each signature is unique, this will make it much more difficult for other people to gain access to the user's files.



Signature Tone

Handwritten messages or signatures can be reproduced on a remote pad connected by telephone to this facsimile transmission pad. The transmission itself is scrambled and silent, so should be doubly safe from interception or eavesdropping.

IEEE

The Institute of Electrical and Electronic Engineers was founded in 1963 in the United States, as a result of the merger of the Institute of Radio Engineers and the American Institute of Electrical Engineers. It now has over 200,000 members throughout the world.

Home computer users may be familiar with the IEEE 488 parallel communications bus, to which the Institute has given its name. The IEEE (usually referred to as 'I triple E') bus standard demands that there should be a line for each bit in a byte, enough lines to accommodate the maximum address, and control lines set aside for input and output. The IEEE standard also consists of a

handshake protocol, which enables data to be checked for accuracy as it crosses the bus. The IEEE bus can be used, therefore, to transmit data between different types of computer.

IF-THEN-ELSE

This conditional statement is to be found in the BASIC dialects on most popular home micros, although the ELSE part of the statement is only implemented on some of the more advanced home machines. When the IF-THEN-ELSE statement is fully implemented on a micro it provides the computer with a choice of actions, dependent on whether the IF condition is either true or false. When the IF condition is true THEN the following action will be executed. Conversely, when the IF statement is false, the action following the THEN statement will not be executed.

The full statement allows a program to be truly structured, as the ELSE command can be used to call another subroutine, which will check for other conditions. Unfortunately, many popular micros have only the IF-THEN part of the statement. This means that when the IF condition fails the rest of the line is not implemented and control is transferred to the following line. While this is not disastrous, as further conditions can be checked on following lines, this system is harder to debug and not as failsafe as having checking procedures in separate routines.

IMPACT PRINTERS

An *impact printer* prints alphanumeric or graphics characters onto paper by means of mechanical impact. There are two main types of impact printer. In the first, an engraved piece of type is forced against an inked ribbon, thus forming an impression on the paper. An example of this type is the daisy wheel printer.

The second type of impact printer consists of a number of pins in a matrix. The pins are forced out in various combinations, determined by electrical signals. The pins press against the inked medium, creating the character on the paper. An example of this type is the dot matrix printer. Although typewriters are, in the strict sense of the term, impact printers, they are generally not included as such. This is because impact printers are considered to be devices that are not exclusively controlled from a keyboard.

IMPULSE NOISE

Noise is considered a problem in computing as it can interfere with electronic signals and, therefore, corrupt the data being transmitted. *Impulse noise* occurs in irregular bursts, and, due to its large amplitude (volume), can badly disrupt the efficient operation of analogue devices. This is because the impulse noise will be picked up by the analogue device and then transmitted as data — thus generating a burst error (an error found in a single piece of data). Impulse noise is difficult to deal with due to the irregular nature of its arrival and the variations in the size of each pulse.