

Analogue to Digital Conversion is the way of converting a continuous analogue signal to a series of digital binary numbers. This is done in many pieces of hardware by taking samples of the analogue signal and then each sample is digitised into a binary code by a microchip. This process is known as Quantization a process where a continuous signal is converted to a series of points at discrete levels. This process is specific to the music industry.

In Computers Modulator Demodulators (Modems) are used to change the analogue to digital and the other way around. The modem uploads data to the Internet by converting it to an analogue signal and broadcasting it through the phone line, then when downloading it converts the analogue signal to binary 1's and 0's.

The analogue wave is created by vibrations in the sound the waveform today is usually recorded into digital format by an Analogue Digital Converter (ADC). The Waveform is turned into a stream of numbers and the ADC records the numbers and feeds them through the speakers. In the computer world a modem is commonly used to connect to the largest Wide area network the internet. The modem uses ASCII Code to translate the waveform to the computer and then back to waveform to translate it and broadcast it over the phone line again.

This was thought to be irreverent when ISDN came in because ISDN was a digital network but this didn't take off because of the price and the work involved in setting one up but speeds of an ISDN reached 128kbps this was fast for the time.

All ADCs work by sampling their input at intervals of time. Their output is an incomplete picture of the of the input. There is no way of knowing, by looking at the output, what the input was doing between one sampling instant and the next. If the input is known to be changing slowly compared to the sampling rate but if the analogue input changes quickly the digital sample will miss it and will be incorrect.