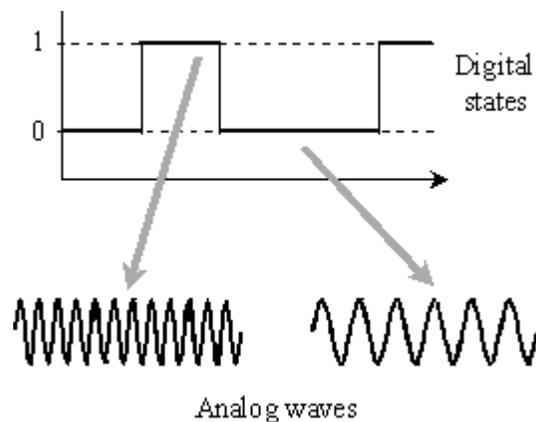


Frequency Shift Keying (simple)

Frequency Shift Keying is a concept that identifies a set of methods that can be used for the transmission of digital Binary data. There are a number of Frequency Shift Key methods and related technologies. Here we are only addressing two of those transmission methods. The first shares the same name as the overall concept, Frequency Shift Keying, but in this case is a specific type of transmission method. The second method addressed is Audio Frequency Shift Keying.

Frequency-shift keying (FSK) is a method of transmitting [digital](#) signals. The two [binary](#) states, logic 0 (low) and 1 (high), are each represented by an [analog waveform](#). Logic 0 is represented by a wave at a specific [frequency](#), and logic 1 is represented by a wave at a different frequency. A [modem](#) converts the binary data from a computer to FSK for transmission over telephone lines, cables, [optical fiber](#), or wireless media. The modem also converts incoming FSK signals to digital low and high states, which the computer can "understand."



Audio FSK

Audio frequency-shift keying (AFSK) is a modulation technique by which digital data is represented by changes in the frequency (pitch) of an audio tone, yielding an encoded signal suitable for transmission via radio or telephone. Normally, the transmitted audio alternates between two tones: one, the "mark", represents a binary one; the other, the "space", represents a binary zero.

AFSK differs from regular frequency-shift keying in performing the modulation at baseband frequencies. In radio applications, the AFSK-modulated signal normally is being used to modulate an RF carrier (using a conventional technique, such as AM or FM) for transmission.

AFSK is not always used for high-speed data communications, since it is far less efficient in both power and bandwidth than most other modulation modes. In addition to its simplicity, however, AFSK has the advantage that encoded signals will pass through AC-coupled links, including most equipment originally designed to carry music or speech.

Applications

Most early telephone-line modems used audio frequency-shift keying to send and receive data, up to rates of about 300 bits per second. The common Bell 103 modem used this technique, for example. Even today, North American caller ID uses 1200 baud AFSK in the form of the Bell 202 standard. Some early microcomputers used a specific form of AFSK modulation, the Kansas City standard, to store data on audio cassettes. AFSK is still widely used in amateur radio, as it allows data transmission through unmodified voiceband equipment. AFSK is also used in the United States' Emergency Alert System to transmit warning information. It is used at higher bitrates for Weathercopy used on Weatheradio by NOAA in the U.S., and more extensively by Environment Canada.