

## Pulse Modulation In Satellite Radio

The Pulse Width Modulation is abbreviated as PWM, is a method of transmitting information on a series of pulses. Relevant data that is being transmitted is encoded on the width of these pulses to control the amount of power being sent to a load. Simply pulse width modulation is a technique for generating variable width pulses to represent the amplitude of an input analog signal or wave. Very popular applications of pulse width modulation are in power delivery, voltage regulation and amplification and audio effects. It is used to reduce the total power delivered to a load without resulting in loss, which normally occurs when a power source is limited by a resistive element. The original principle in the whole process is that the average power delivered is directly proportional to the modulation duty cycle and if the modulation rate is high, it is possible to smooth out the pulse train using passive electronic filters and recover an average analog wave form. The High frequency pulse width modulation power control systems can be realized using semiconductor switches.

At this time, the discrete ON or OFF state of the modulation it can be used to control the switches, thereby controlling the voltage or current across the load. Very major advantage with these types of switches is that the voltage drop across it during conducting and non-conducting states is ideally zero. The field application includes Class D audio amplifiers, DC motor speed control, and light dimmers common in homes. The Pulse width modulation is widely used in voltage regulators. As it works by switching the voltage to the load with the appropriate duty cycle; the output will maintain a voltage at the desired level.

The Pulse width modulation is also exploited in sound synthesis, especially subtractive synthesis, as the process gives a chorus effect or that of slightly detuned oscillators played together. Some other application of PWM, as mentioned earlier, is the class D amplifiers, known for better audio clarity alongside its basic function - amplification. One of class D amplifier produces a PWM equivalent of the input analog signal, which is in turn fed to the loud speaker after filtering out the carrier wave by sending it through a suitable filter network, class D amplifiers are growing in demand owing to its better efficiency, lightweight, and cost and also, due to the full on/off nature of PWM output, such amplifiers produce less heat than their conventional analog counterparts. The frequency modulation is a type of modulation where the frequency of the carrier is varied in accordance with the modulating signal and the amplitude of the carrier remains constant, information-bearing signal changes the instantaneous frequency of the carrier. As the amplitude is kept constant, FM modulation is a low-noise process and provides a high quality modulation technique which is used for music and speech in hi-fidelity broadcasts.

## About the Author

Tymon Hytem has worked in the electronics field for the past 15 years. He enjoys helping people decide on electronic gadgets from telephones to [XM Radio](#) and choosing the perfect [XM Satellite Radio](#) system for their needs.

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