

Can you use Mic cable for DMX?

Is there really a difference?

The short answer is yes, there is. The connectors may be the same in some cases, but the physical specifications and the type of data that is transmitted make DMX cable completely different than microphone cable.

DMX is a digital control signal, meaning that a series of data packets are communicating control information using pulses of high and low voltage corresponding to 1s and 0s in binary notation. Data for all 512 channels is communicated down a serial connection that feeds one bit of data at a time and is read sequentially from address 1 to address 512. After the final channel data is sent by the console, the signal starts over again and refreshes any changes made to DMX values, all of which can happen in a fraction of a second.

When we use a microphone, we are generating an analog signal by convert mechanical sound waves produced by the human voice into electric current. These signals vary in frequency and amplitude in response to changes in pitch and loudness but are providing nowhere near the amount of information as you would measure in a digital signal.

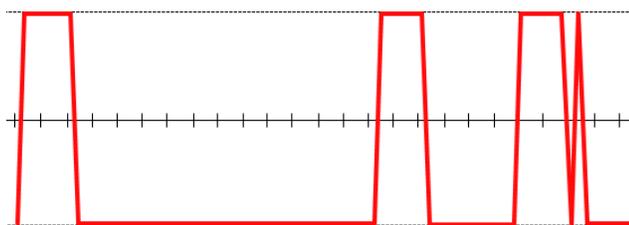
Impedance matching

Characteristic cable impedance, measured in Ohms, can be understood as the relationship between an electrical current and the resistance the cable presents to the signal as it passes through. Impedance matching is important especially for high bitrate digital signals as the shorter wavelengths and sharp pulse transitions of these signals are more susceptible to degradation and reflections. DMX has a relatively high bitrate of 250 kbit/s so to minimize degradation, the ideal signal propagation will depend on matching the DMX protocol's specified cable impedance as closely as possible. For the best performance, you should use a 110-120 Ohm, low-capacitance cable designed specifically for DMX data, like our ProPlex 2-Pair DMX512 cable.

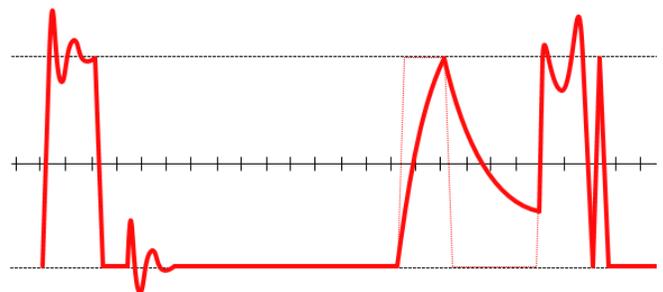
In the analog audio world, cable impedance matching for microphone use is not as much of a consideration. This is because the sound information we are transmitting is at relatively low frequencies and longer wavelengths that are unaffected by impedance issues. Microphones and mic cables both can have a wide range of impedances but are commonly 70 Ohms and unsuitable for DMX.

So what really happens if I use mic cable for sending DMX?

Substituting mic cables for DMX can have potentially serious implications for your rig. An ideal DMX data packet originates as a square wave with pulses of positive and negative voltages. Use a mic cable and DMX will suffer from data reflections that can destabilize the original signal. The important timing and spacing between pulses can experience "rounding off" on the corners, creating uneven disturbances in the bitstream. Lighting fixtures on the receiving end may experience unpredictable results as they try to interpret a corrupt signal. You may see blinking or flashing LEDs or intensity shifting, even stuttering movement in intelligent moving heads as fixtures become confused by interference. It just isn't worth the risk.



Ideal DMX Signal



DMX Signal with Reflections

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