

Artistic Licence Application Note 13

What is Art-Net?

Art-Net is a communication system that allows DMX512 to be sent over Ethernet. It was invented by Artistic Licence and has now been published into the public domain.

OK - so why would I use Ethernet?

Using Ethernet for transmitting lighting data has many benefits. The following lists a few:

1. Ethernet (10BaseT) can carry up to 40 times as much data as a DMX512 cable.
2. The 'Computer' industry is much larger than the 'Entertainment Technology' industry. Using Ethernet for lighting control provides access to a wide range of low cost products such as Hubs and Radio Links.
3. Ethernet uses low cost cable that is readily understood by building contractors. This allows all of the lighting cable to be installed and certified before the lighting contractors start their installation.
4. Many existing buildings are already wired for Ethernet. This allows existing building cable to be used for retrofit or temporary lighting projects.
5. Products for moving data around physical barriers, such as cityscape projects or crossing rivers, are readily available. These include a range of technologies such as WiFi radio links, LASER links and telephony systems such as leased line, ADSL, ISDN, VPN and so forth.
6. All Ethernet wiring is 'Star' format. This increases system reliability compared to the 'Ring' or 'Loop Through' wiring used with DMX512.

There are a few drawbacks:

1. The maximum cable distance is approximately 100m compared to 300m for DMX512. However the lower cost of Ethernet Hubs compared to DMX512 Splitters makes this a minor problem.
2. All Ethernet wiring is 'Star' format. Generally this requires more cable. However, as Ethernet can carry much more data than DMX512, there is still a net saving.

So is Art-Net the same as Ethernet?

No, Art-Net is the communication protocol that 'sits' on top of Ethernet. An analogy is the way that DMX512 'sits' on top of the RS485 standard.

What does Art-Net offer me that DMX does not?

In addition to all of the benefits listed above:

1. It allows remote patching of all of the DMX512 inputs and outputs. This is a big benefit for installations with multipurpose rooms.

2. It allows DMX512 data to be merged in either LTP or HTP format. This can be used to include, for example, a house lights controller into a system.
3. Features such as remote control of the lighting console are easy to implement.
4. It supports the forthcoming RDM standard, allowing the lighting console to retrieve information from the moving lights and dimmers. This also includes the ability to automatically patch all of the lamps.
5. The lighting consoles video screen monitors can be transmitted over Art-Net to allow remote monitoring in, for example, the dimmer room.
6. Free tools, such as DMX-Workshop, are available to monitor data at any point on the network from a central location.
7. Inexpensive tools, such as Net-View, allow monitoring and configuration by radio link.
8. Perhaps most important, Art-Net is a public domain, royalty free protocol that is supported by over twenty manufacturers.

Are there any drawbacks to using Art-Net?

No - none!

Will Ethernet replace DMX512?

No - definitely not. The real point of Art-Net is that it allows Ethernet and DMX512 to work together, so you get the benefit of both worlds. For example, the 'star' wiring of Ethernet would be a major annoyance for cabling moving lamps on a truss. The best solution is to take Ethernet from the console to the truss and then convert to DMX512.

Can I use Art-Net with other systems such as ETC Net?

Unfortunately not. Systems like ETC Net use Ethernet but the language is different to Art-Net. ETC has not published the technical information, so we are unable to help our customers overcome this problem.

Wayne Howell

Artistic Licence

Copyright Artistic Licence 2007. All Rights Reserved.