



Art-Net - An Introduction



What are Art-Net and RDM?

Art-Net is a protocol that transports DMX and RDM over an Ethernet network. The RDM protocol works alongside DMX allowing two-way communication between fixtures and controllers.

First came DMX

DMX was designed to control up to 512 channels (a universe) of lighting values over a single cable. It worked well for many years but eventually outgrew its 512 channel limit and desks with several DMX universes began to appear. Soon even this was not enough as the development of channel hungry fixtures progressed and designers needed more channels than DMX could offer.

Next came Art-Net

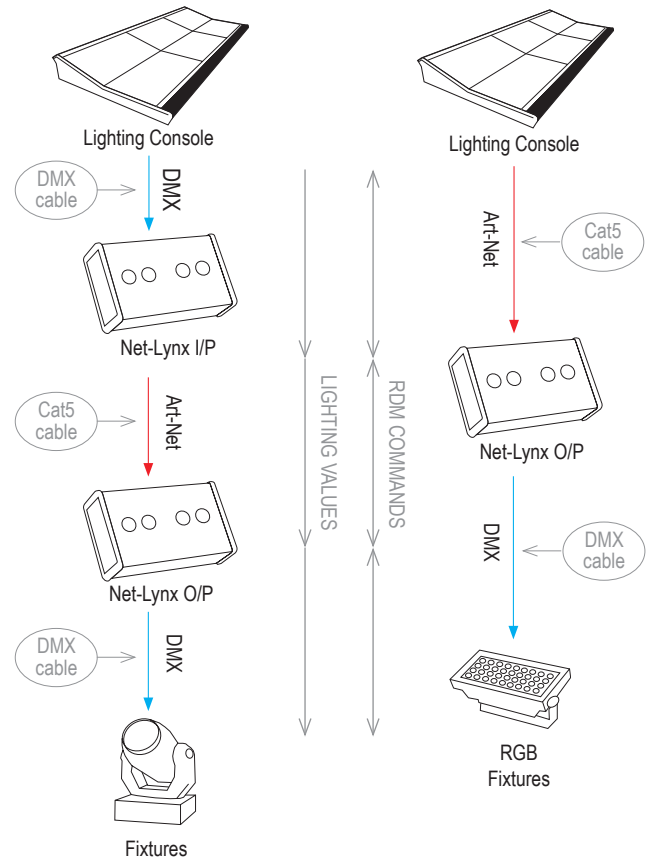
Art-Net was created by Artistic Licence to overcome the channel restriction of DMX while still utilising its structure. It allows multiple DMX universes (within limits) to be transported over a single Cat5 cable using the Ethernet technology. In the beginning, DMX signals from a lighting desk were converted to Art-Net by using a DMX/Art-Net converter. The signals were then transported over an Ethernet network and converted back to DMX before entering each fixture. Manufacturers quickly saw the benefits of Art-Net and started to support the protocol in their new lighting controllers.

Then RDM.....

The key benefits of RDM, amongst a host of others, are remote start addressing and sensor monitoring – features which suddenly opened up a huge opportunity for the technical knowledge within the entertainment industry to translate across to the architectural lighting environment. Artistic Licence immediately incorporated RDM into Art-Net and was one of the first companies to implement RDM fixtures in a large scale installation.

Followed by Art-Net II

Like DMX, Art-Net assumed that its Broadcast limit of 40 universes would be enough for most installations. However, with the wide scale adoption of LED RGB devices and the Broadcast method of sending data, 40 universes became inadequate. To overcome this Art-Net II adopted Unicast transmitting, which broke through the Broadcast barrier by selectively sending data only to the destinations where it was needed.



An early use of Art-Net. The desk would transmit using DMX which is then converted into Art-Net, transported to the fixture and then converted back again.

And now: The controller transmits Art-Net directly over an Ethernet network. It is then converted back to DMX for the last part of the journey to the fixture.

And finally Art-Net 3

Even after the release of Art-Net II it was quickly realised that the 256 universe limit was going to become a limiting factor. With Art-Net 3's release users are able to utilise upto 32,768 universes; that is over 16 million DMX channels.

Art-Net Features

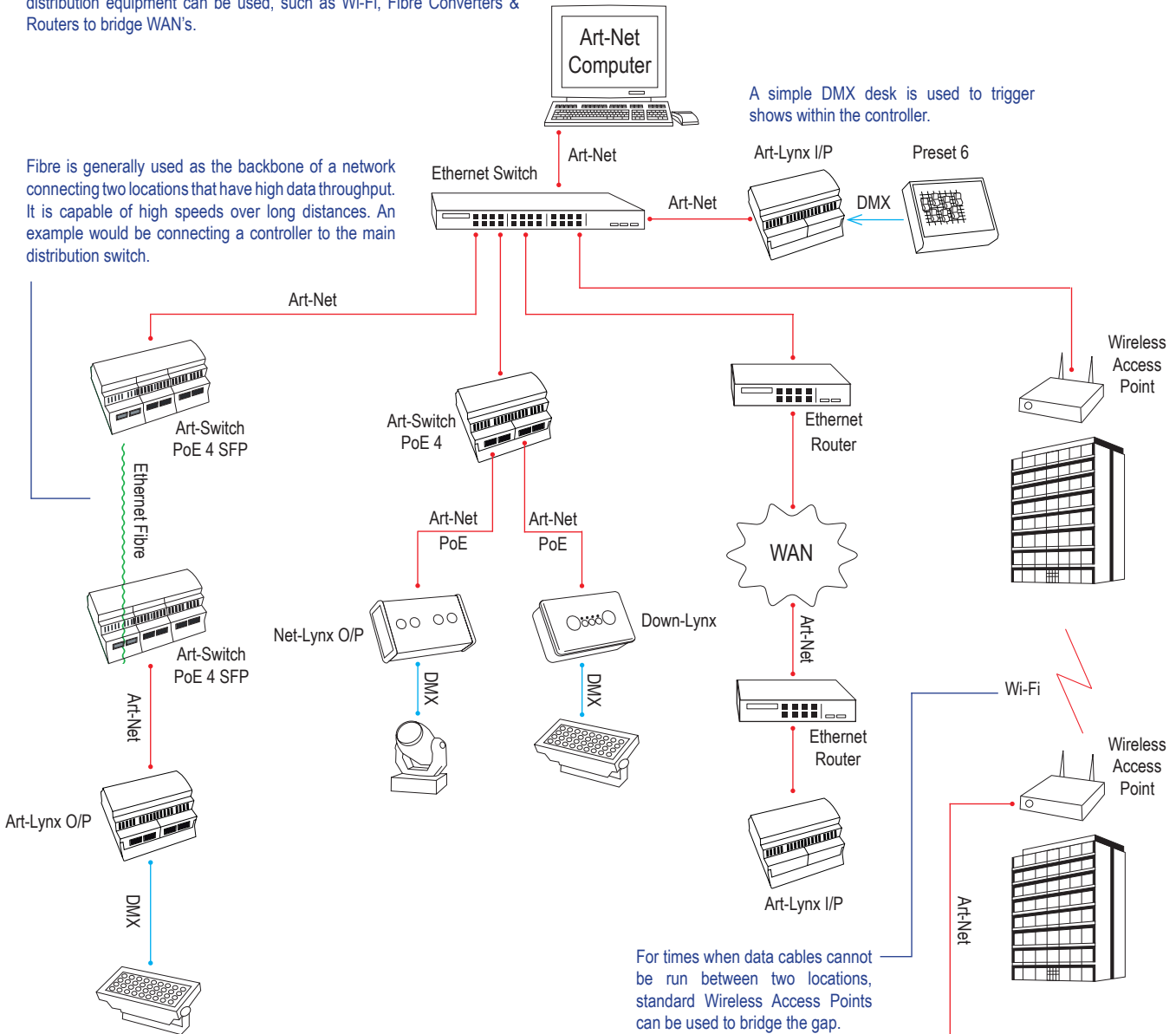
- Transports up to 32,768 DMX universes over a single network
- Uses standard Ethernet technology equipment
 - Wireless / Fibre (long distance)
 - Routers to send data over WANs and internet
- Full support for RDM (node dependent)
- Transmits using Broadcast & Unicast techniques
- DMX merging allows use of two controllers
- Remote configuration of nodes (universe selection, merging etc)
- Free network tools available (DMX-Workshop, Net-View)
- Numerous converters available
- Multi-manufacturer support
- Protocol released, free of charge, in the public domain
- Perfect for large scale LED installations



Application Notes



This diagram illustrates some possibilities when using Art-Net Data Distribution. As Art-Net is an Ethernet protocol, a wide range of data distribution equipment can be used, such as Wi-Fi, Fibre Converters & Routers to bridge WAN's.



Art-Net Products Available

Two-Universe Converters:

- AL5001 and AL5002 - Art-Net/DMX converter modules
- Art-Lynx (I/P & O/P) – DIN Rail mounted
- Net-Lynx (I/P & O/P) – Portable desktop housing
- Up / Down-Lynx – Wall mounted panel
- Cata-Lynx (I/P & O/P) – 1U 19" Rack Mounted

Multi-Universe Converters:

- Ether-Lynx II – Two DMX inputs & four DMX outputs, housed in a 1U 19" rack case
- Data-Lynx (I/P, O/P & IO/P) – 1U 19" Rack mount unit with up to 12 universes of conversion

