

Application Note 4

What is DMX512-A ?

DMX512-A is the colloquial name for a new protocol called ANSI E1.11. The protocol is now an ANSI (American National Standard Institute) standard.

The development of DMX512-A is managed by ESTA. The group doing the work is called the DMX512 Task group and currently consists of the following key players:

Mitch Hefter (Chair / Rosco), Wayne Howell (Artistic Licence), Tim Bachman (Leviton), Scott Blair (formerly HES), Bob Goddard (Goddard Design), Doug Fleenor (Doug Fleenor Design), Ted Paget (Jones & Philips), Peter Willis (Howard Eaton). This list is not exhaustive and many others have been involved in the work.

DMX512-A was previously called DMX2000. The DMX512-A standard will replace DMX512.

The key features are:

- ❑ The new standard is fully backwards compatible. This means that equipment designed for DMX512-A will work with DMX512 (1990).
- ❑ DMX512-A defines higher levels of electrical protection for the data connection. This will benefit by reducing the potential for damage from static electricity or lightning strike.
- ❑ A specific definition of the earthing practises that are allowed. Most of the compatibility problems between installed equipment have been caused by bad or incompatible earthing practises.
- ❑ The use of pins 4 & 5 is specifically defined. These pins can no longer be used for anything but RS485 data. This means that Pulsar and Clay Paky are not allowed to connect power to these pins.
- ❑ The connector usage is defined more specifically. Most important is the fact that the 3 pin XLR must not be used for DMX512. The main reason for this decision is to stop the confusion between DMX512 cables and audio cables.
- ❑ Electrical isolation, also called optical or galvanic isolation, is now defined. DMX512-A does not mandate optical isolation. However, it does define the requirements for isolated equipment. It also suggests that the DMX512 receiver should be isolated, whilst the transmitter is grounded.
- ❑ The System Information Packet or SIP is a new feature aimed at large installations. SIPs are transmitted at low frequency, by the lighting console, interleaved with normal lighting data. The SIP contains information about the console such as software revision, but also provides information such as the number of times the DMX signal has been processed. This could be passing through a merger or patching system. The SIP data can then be monitored at any point in the distribution chain.
- ❑ Another new feature is the Text packet. This allows text information to be sent via the DMX512 signal. The key benefit is that 'black box' products that do not contain a screen are able to display text information such as operating status and software revision numbers.

- ❑ The installation test packet is a special type of DMX512 data that contains the worst case type of data. Worst case means data that is most likely to make a data distribution problem visible. The benefit of this is that it becomes possible to test a DMX512 installation with a known type of data.
- ❑ DMX512-A introduces a new system of unique manufacturer identification codes. These allow processing equipment to be identified from anywhere within the installation.
- ❑ Finally, DMX512-A lays the foundations for the RDM or Remote Device Management protocol.

This document is very much an overview of the key changes. The full standard can be purchased from ESTA.

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