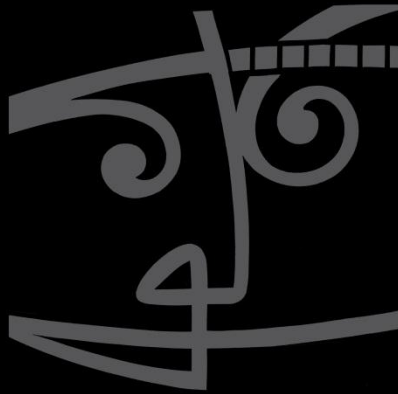


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**In den beginne was er:**

- Analoge sturing
- DMX 512
- ...

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**Nu is er:**

**Nog steeds...**

**- DMX 512**

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## **DMX 512**

- Beperkt tot 512 kanalen op 1 lijn of universe
- Specifiek materiaal nodig om te splitten
- Standaard stekker is een XLR5
  - Enkel pin 1, 2 en 3 worden gebruikt.
- Terugspraak gebeurt via standaard protocol.

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## **DMX 512 en RDM**

- **Remote Device Management**
- **Toestellen melden zich aan bij controller.**
- **Toestellen kunnen worden geadresseerd.**
- **Toestellen kunnen status rapporteren.**

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## DMX via netwerk

- Netwerk als multikabel voor DMX

- vb ArtNet

Wayne Howell – Artistic Licence

Beschikbaar als Software development  
kit.

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## **ArtNet I**

- **Broadcast Netwerk protocol**
- **In theorie**
  - **256 universes (Incl RDM)**
- **In praktijk**
  - **tot +/- 40 universes**

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**ArtNet II (sinds**

- Unicast Network protocol**
- 256 universes (Incl RDM)**

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**ArtNet III (sinds 2011)**

- Unicast Netwerk protocol
- 32.768 universes (Incl RDM)
- nooit gezien...

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**ArtNet III (sinds 2011)**

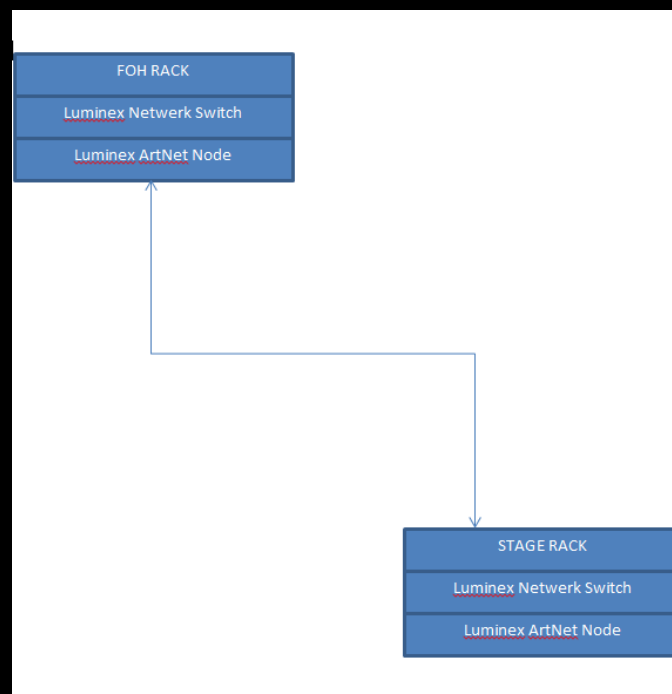
- Unicast Netwerk protocol
- 32.768 universes (Incl RDM)
- nooit gezien...

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# Ancienne Belgique



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## **ACN**

- **Architecture for Control Networks**
- **Multicast (gerichte boodschappen naar toestellen of groepen.)**
- **DMP of Device Management Protocol**
- **basis voor ETC NET3**

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**sACN**

- **Streaming ACN**
- **NU beschikbaar**
- **voorlopige versie**

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Protocol Name	Standard	Implementation Status	Comments
Root Layer Protocol (RLP)	ANSI E1.17	Complete	
Session Data Transport Protocol (SDT)	ANSI E1.17	Not Implemented	Coming soon...
Service Location Protocol (SLP)	RFC 2609	Complete	Directory Agent Not Included
Simple Network Time Protocol (SNTP)	RFC 2030 ANSI E1.30-3 - 2009	Complete	
Trivial File Transfer Protocol (TFTP)	RFC 1350	Not Implemented	
Device Description Language (DDL)	ANSI E1.17	Not Implemented	
Device Management Protocol (DMP)	ANSI E1.17	Partial	Only parts required for SACN have been completed.
Streaming ACN (sACN)	ANSI E1.31	Complete	
RDM Extension (RDMNet)	ANSI E1.33	Complete	Draft Edition of Standard, should only use for prototyping purposes!
Remote Device Management (RDM)	ANSI E1.20	Complete	

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## **MA Net**

- **Eigen protocol van MA Lighting**
- **Volledige netwerk communicatie**
- **Alles verloopt in synch.**

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**MA Net**

- **Communicatie tussen**
  - desks
  - desks en NPU's
  - Sturing en media servers
  - Sturing en dimmers
  - ...



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### MA System Integration

#### Control

**Video**



Video integration –  
MA VPU (Video Processing Unit)



Feder expansion – grandMA2 federwing



grandMA2 – Multi-User-Mode and backup solution (via 1GB/s MA-NetZ)



Live show controller, backup system and  
Preprogramming Tool – grandMA2 onPC



Preprogramming and visualization –  
grandMA 3D

**Dimming**



Dimmer integration with feedback function

**Network**



Parameter expansion –  
MA NPU (Network Processing Unit) –  
up to 65,536 parameters per session



Signal distribution – MA 2Port Node and  
MA NSP (Network Signal Processor) as  
4Port Node



MA remote control

For further information about the MA System and parameter expansion with MA NPU, please refer to page 40