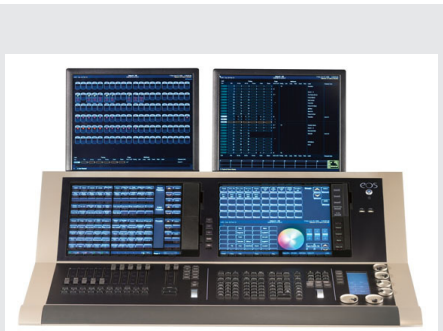# Understanding Channel versus Address in Eos Family Consoles

*by David Hilton, ETC Field Project Coordinator*

The Eos family of consoles, including Element, Ion, and Eos, handle dimmers, LEDs, and moving lights in a way that is different than legacy consoles. Understanding how it defines channels and handles DMX addresses is important in determining which console is right for the venue.

Unlike Express(ion) consoles, the Eos family has merged the idea of fixtures, devices and channels into the word "channel." One "channel" can control the multiple addresses of a moving light, for example, whereas Express(ion) which used multiples channels for one moving light. It can also take the multiple addresses required to control a Source Four and a Color Scroller on the front of that Source Four and place them into a single "channel."

### One channel can be any of the following:

- A dimmer
- Multiple dimmers
- Color-changing LEDs fixture
- One Moving Light
- A Source Four with a Color Scroller

In terms of address, Eos family has changed the name of dimmer to address, since DMX addresses can be more than just dimmers.

### One address can be any of the following:

- A dimmer
- One parameter of a moving light
- One parameter or color of an LED fixture

How the console presents its capacity is much different than Express(ion) consoles, because Eos family was built to be fully integrated in a networked system. A console's capacity is represented in two ways, first by channel count, then by address count. The channel count often times greatly exceeds that of the address count. This is to give users increased flexibility of patching channels at a high number. Say a designer, for example, wants to patch his Mac 2k Profiles to channels 2001-2010. In Eos and Ion, they can.

Channel vs. Address

**Console Capacities**

| Console | Channel Capacity | Patched Address Capacity |
|---|---|---|
| Element 250 | 250 | 1,024 |
| Element 500 | 500 | 1,024 |
| Ion 1k | 10,000 | 1,024 |
| Ion 1.5k | 10,000 | 1,536 |
| Ion 2k | 10,000 | 2,048 |
| Ion 2.5k | 10,000 | 2,560 |
| Ion 3k | 10,000 | 3,072 |
| Eos 4k | 10,000 | 4,096 |
| Eos 8k | 10,000 | 8,192 |
| Eos 12k | 10,000 | 12,288 |
| Eos 16k | 10,000 | 16,384 |

In terms of channel capacity, one cannot patch to channels numbered above the consoles limit. The smallest capacity is found in Element, which has the lowest channel count. In an Element 250, for example, one cannot patch to channel 251.

In terms of patched address capacity, the only thing Eos family consoles count against the total is a patched address. Since the consoles were designed to be on a network, you can spread the console's addresses across the 64 universes of ACN. For example, if I have an Element 250, I can patch a 96-way Sensor+ Rack in universe one, then 11 Seladors in universe two, and will only have used 184 of my 1,024 total address limit. The 416 addresses that I skipped over in universe one remain unused and thus don't count against my total.

What we have seen from some master electricians is separating each fixture type into different universes since ACN gives them the ability to do this easily. An example of this would be putting dimmers in universe one, scrollers in universe two, LEDs in universe three, and moving lights in universe four. All you have to do is simply reassign the ports on your Net3 Gateway, which can be done from the shell of an Eos family console.

As a note, you will have to use a Net3 Gateway to access more than two universes of ACN from an Element or Ion since those consoles only have two native ports of DMX. Eos does not have any native DMX ports, so you must connect this console to a Net3 Gateway to get DMX.

A final note is that all the capacities on Element, Ion, and Eos are simply software based. One can buy an Element 250 and upgrade with a password provided by ETC to an Element 500 at a later date. A facility can have an Eos 4k for years, then upgrade to an Eos 16k without having to send the console back to ETC.

If you have any further questions about this or need help in deciding the right console for the job, please feel free to contact either your local ETC Field Project Coordinator or ETC's Tech Support.