

Lighting Fundamentals

Dimmers, Circuits, and Channels

Definitions

Common Numeric Designators

All four of the following items carries a numeric designation which is important to understand and to document. A hung light can be referred to by any of these numbers. For example: *Instrument 1, circuit 4, dimmer 3, channel 15* are numbers which could all refer to the same light.

Instrument: A light hung in a specific position.

Dimmer: A device used to control the amount of power available to a load. Most often, a dimmer is used to adjust the intensity of a lighting instrument.

Circuit: In Theatre, 'circuit' refers to electrical cabling that runs between a power source and a load. Most often you will find circuits in floor and wall pockets, along connecting strips (as in the Studio Theatre), and as multicables or other extensions.

Channel: Channel is a numeric designation which exists within a lighting control board. It is used primarily as an organizational designation.

Patching

Hard Patch: Hard patching refers to making a physical electrical connection. It nearly *always* refers to the connection between a dimmer and a circuit.

Soft Patch: Soft patching occurs within the software of computer lighting boards. It nearly always refers to the correlation between a channel and a dimmer. Softpatch allows a designer to organize lights in a way that makes sense in terms of the design, as opposed to in terms of electrical connections.

In the above example, Instrument 1 is *circuited* to Circuit 1, which is *hardpatched* to Dimmer 3, which is *softpatched* to Channel 15.

It is common to find distinct dimmers, circuits, and channels on touring shows and in road houses (such as Burrus Stage). However, as the cost of dimmers has gone down, more theaters have installed "dimmer per circuit" systems. Instead of hardpatching circuits to available dimmers, each and every circuit has its own dimmer to which it is permanently connected. This is the case in the Studio Theatre.

This has led to the words "dimmer" and "circuit" being used – mistakenly – interchangeably.

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Dimmers, Circuits, and Channels : Lab Exercise

Equipment Used

CD80 Pack
Control cable
Multicable
Male Edison → Female Stagepin adaptors
GSX, Monitor
2 instruments

Lab Exercise

In this lab, we will be installing a complete touring lighting system. This should give you a good understanding of the elements involved in a system of any scale.

In groups of Four, set up the demo system as per the paperwork excerpt below. While the other group is working, make a rough sketch of a complete lighting system (dimmers, circuits, instruments, control, patching, etc) and label the important parts.

Instrument	Channel	Circuit	Dimmer
1	15	3	2
2	25	1	3