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Patchbays and Switchers in Video Digitization

A patchbay (also known as a patch panel) is a device that can be integrated into a video digitization rack and enables the user to customize the signal path without resorting to crawling around behind a rack and without needing to move equipment. All desired components of a video digitization system are plugged into the back of the panel--monitors, scopes, decks, audio meters, etc. The front of the panel (usually) contains two long rows where cables can be plugged in--outputs on the top row, inputs on the bottom. Despite all equipment being plugged into the back, the signal does not go anywhere until instructed to do so--that is, until the user physically routes the signal using patch cables. Once patched, the equipment recognizes that connection and the video signal is routed accordingly. Connections in patchbays can be "normalised"--that is, fixed so that they are always connected internally, or until they are interrupted by patching.¹ Patchbays are typically used with RCA, TT ("tiny telephone" or bantam), or ¼-inch TRS cables.²

A switcher serves a similar purpose of making the user's life easier when digitizing video. Switchers are frequently used in live television broadcasts in order to quickly change camera feeds, such as during a sports game or concert. In the context of video preservation, switchers--as the name implies--allow the user to change the source of the video signal, enabling inputs from multiple sources to be connected to one or more destinations.³ For example, if a video digitization station includes two capture cards, a switcher would allow the user to alternate back and forth on a CRT between the two signals while you digitize two tapes on two decks, in order to monitor the signal of each. Switchers enable users to connect multiple video systems at once and simply choose between the components they share by pressing a button, rather than plugging and unplugging cables every time.

A switcher consists of a matrix of crosspoints, which physically connect each input with an output.⁴ These crosspoints all operate on a fixed delay in order to maintain connection speeds, regardless of input/output selection.⁵ Companies like Kramer that sell switchers offer a single-output version, switchers that allow for multiple inputs and outputs in one device, and multi-format switchers. These contemporary switchers also automatically detect what kind of signal is being routed, and can handle different types of signals (composite, S-Video, component, DVI).⁶

¹ "Patch panel.", *Wikipedia*.

² Eaton.

³ Pizzi and Jones.

⁴ *Ibid*.

⁵ Poynton, 136.

⁶ "Video Matrix Switches and Bandwidth."

The device itself consists of a series of distribution amplifiers and simple on/off switches to direct each signal. Video routers/switchers have bandwidth capabilities (measured in Hertz), and it is important that a user estimate what their highest possible bandwidth needs are--that is, one input to all possible outputs.

Though neither patchbays nor switchers are essential components to a video digitization station, they are likely both wise investments if a user is working with numerous decks and/or ancillary equipment.

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