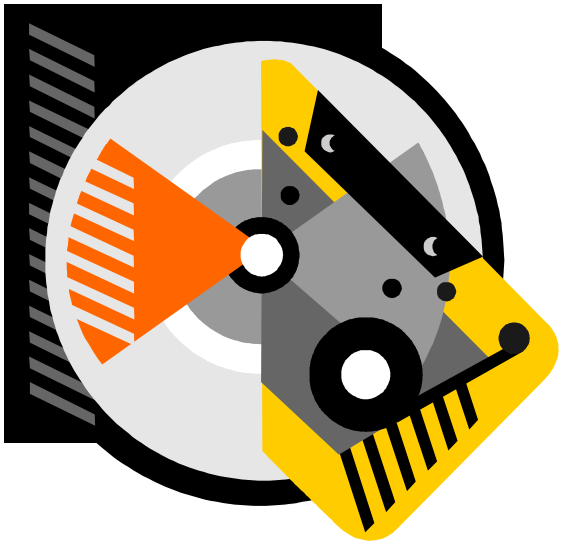
Control, Mixing and Monitoring

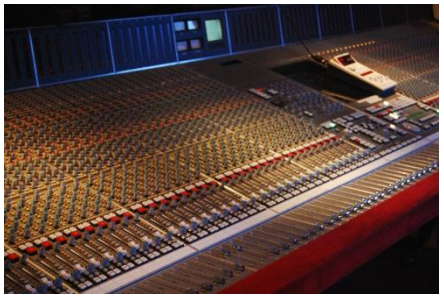


Operational Theory

- Consoles have three basic functions: amplification, routing, and mixing.
- Amplification (obvious).
- Routing – sending audio to one destination or another, using the assignment switches.
- Mixing -- using volume controls (faders) to balance and blend audio from numerous sources.

Types of Audio Control Consoles

- Five types of audio control boards/consoles:
- On-air and production consoles.
- Virtual consoles exist within Digital audio workstations (Adobe Audition).
- Portable mixers
- Large-format mixing desks.



On-Air and Production Consoles

On-air consoles (see 4.3)

Broadcast (on-air) console Broadcast (on-air) console 2

What are on-air consoles used for?

- Input selector above each channel – allows more than one use of the channel, usually labeled A and B.
- Output or Assignment – Buses. Program or Audition. May have two more auxiliary buses, allow for telephone feeds or talk-back. Master output.
- Listening in Cue – allows material to be previewed, does not go on the air. Separate monitor.

Faders and Level Control – also called “pots.” Control volume level. On/off switch may be used as remote start.

Monitoring your work/ On-air operational tips

- Why do we use headphones?
- When on-the-air, listen to the

"air" monitor. Why?

- Don't bring drinks or food into

the studio. Why?

- Don't rely on your ears to tell you if the signal is loud enough or too loud. What do you use instead?
- What should be the average reading of the VU meter?

Production Consoles in Depth

- Production consoles are used for creative audio projects,recording of music, commercials, etc.

http://www.mediacollege.com/equipment/mackie/mixer/images/onyx-1620.jpg

Mackie mixer video

The In-Line Layout (see 4.6)

- Each channel strip contains input and output routing, monitoring, etc. controls and can operate somewhat independently.

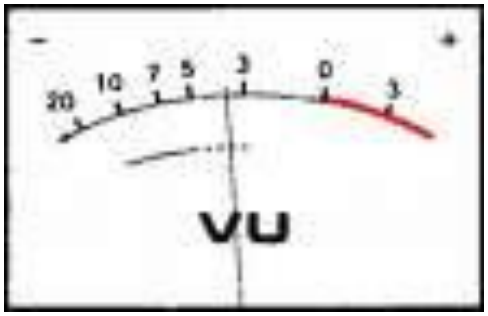
The Input Section

- The patch bay allows audio to be routed in and out to any location in the system (see 4.7)

Panoramic control and equalization

- Pan control allows positioning of a channel between left and right channels
- Equalization – boosts or cuts certain frequencies to emphasize the bass or treble tones
- If you're not experienced, pan and equalization can do as much to spoil a recording as they do to improve it; best to leave in center position.

Metering: Being able to “see” audio



- Like pilots who learn to fly by their instruments, audio producers must use VU meter.
- Studio monitors do not, cannot and will not allow you to judge audio levels accurately.
- Audio levels are adjusted by first observing the meters and setting the level.

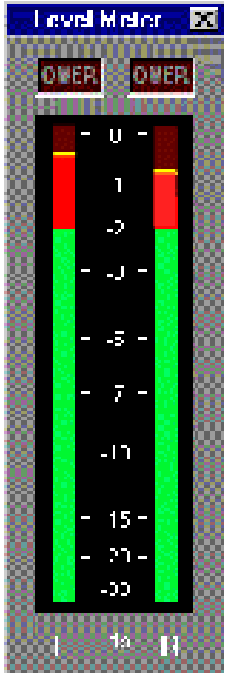
VU meters (see 4.9)

- Meter has two scales: The upper scale is in volume units.

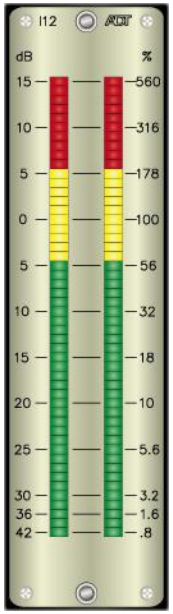
VU meter video

- The lower scale is in percent.
- Audio above 0 VU or 100% is in danger of distorting or clipping.
- Audio below -15 VU or 20% is of no practical value.
- Audio that hits +3 VU called “gone,” all distortion and clipping.
- Manufacturers build “headroom” into boards so that occasional peaks into the “red” do not cause distortion.
- VU meters show average levels, cannot always show instantaneous peaks.

Peak Meter and Electronic Bar-Graph Meters



- Peak meters display signal peaks, maximum signal level (as opposed to average level on VU meter; see 4.10). Best for digital recording. Calibrated in decibels.

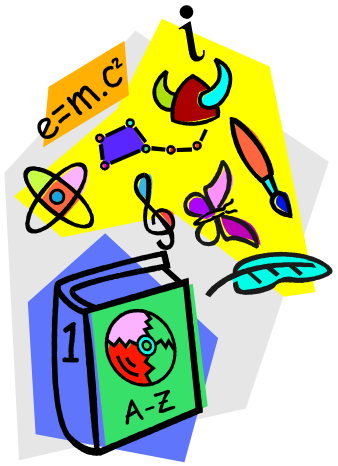


- Electronic Bar-Graph Meters use LED display (see 4.11). Shows sound levels almost instantly. Shows readings from green, to yellow and red. Can be marked in VU or peak scale.

Digital meter video

Pro Speak

- Dry signal – unprocessed audio signal.
- Wet signal – processed audio signal, contains special effect.
- Interruptible foldback (IFB) – allows board operator to talk to the talent.
- Hard clipping – beyond distortion; break up.
- Headroom – additional capacity.



Vintage equipment video