

Homework 13: User Manual

Team Code Name: Drink Mixer Group No. 2

User Manual Outline:

- **Brief (marketing-style) product description**
- **Product illustration annotated with callouts for each control/display**
- **Product setup instructions**
- **Product use instructions**
- **Product troubleshooting instructions**

Evaluation:

SCORE	DESCRIPTION
10	<i>Excellent – among the best papers submitted for this assignment. Very few corrections needed for version submitted in Final Report.</i>
9	<i>Very good – all requirements aptly met. Minor additions/corrections needed for version submitted in Final Report.</i>
8	<i>Good – all requirements considered and addressed. Several noteworthy additions/corrections needed for version submitted in Final Report.</i>
7	<i>Average – all requirements basically met, but some revisions in content should be made for the version submitted in the Final Report.</i>
6	<i>Marginal – all requirements met at a nominal level. Significant revisions in content should be made for the version submitted in the Final Report.</i>
*	<i>Below the passing threshold – major revisions required to meet report requirements at a nominal level. Revise and resubmit.</i>

* Resubmissions are due within **one week** of the date of return, and will be awarded a score of “6” provided all report requirements have been met at a nominal level.

Include this sheet as a cover page for your report



Look no further than the Drink Mixer for your audio mixing needs! This eight channel audio mixer provides as many conveniences as possible to you, the user, without sacrificing mixing abilities. Panning, reverb, delay, all are within your grasp! Adjust the gain, change your levels, and never fear that your perfect combination will be lost! With the flick of a finger on the keyboard you can save your settings and recall them at a moment's notice. Easy to use, reliable, and capable of fulfilling all of your mixing dreams: **the Drink Mixer.**





Cautions

- The Drink Mixer is not meant to be used in a high humidity environment and can be damaged by liquids. Do not allow the device to get wet.
- Do not open device. Do not open the power supply. Do not obscure the openings of the vents. High voltages are contained inside.
- Do not use device if the power cord has been torn, become frayed, or has been compromised in any way.



The "Drink Mixer"

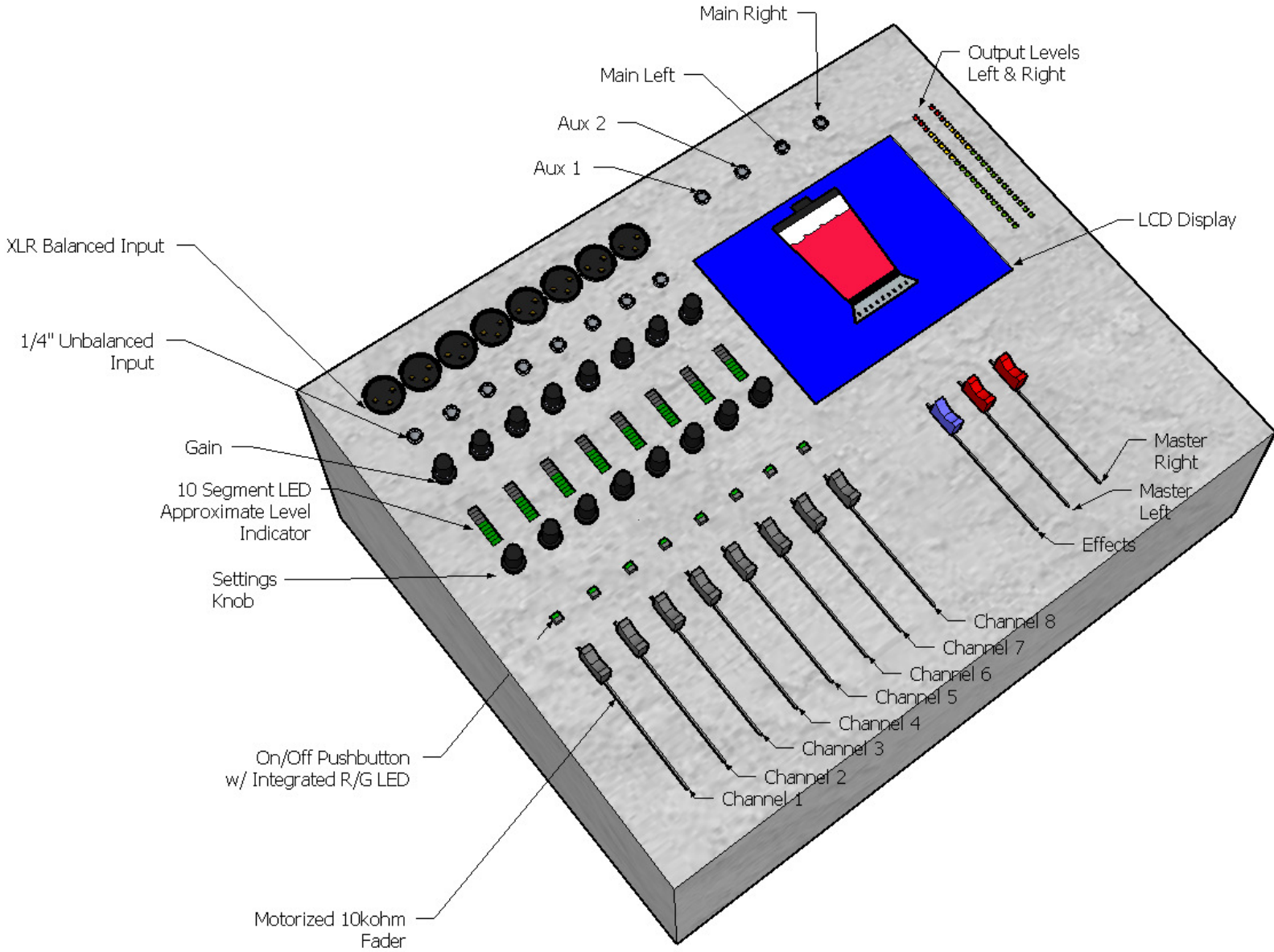


Figure 1: Drink Mixer user interface. Note that screen image is simulated.



Setting Up the Drink Mixer

Setup is easy and straightforward. Plug the Drink Mixer's power cord into a standard household 120VAC outlet. The screen should light up. Next, attach a USB keyboard or mouse to the top USB port on the right side of the unit. After a few seconds, the default user interface will be displayed on the LCD display. Next, attach either XLR balanced or 1/4" unbalanced audio cables to the audio input channels you desire to use. The last step is plugging in your 1/4" output cables into Aux1, Aux2, Main Left, and Main Right, located above the LCD screen. Now you're ready to go! Refer to the next section for instructions on how to use to controls to mix audio.



Mixing with the Drink Mixer

After plugging the audio inputs into the appropriate input jacks, adjustments can be made to mix the audio inputs according to your desire. As you can see in Figure 2, below the audio inputs for each channel you will find an analog gain knob, a level indicator, a settings knob, an on/off button, and a motorized fader. All of these controls are explained below. Instructions also follow for using the LCD display, keyboard, and mouse.

Gain Knob

This knob controls the gain of the channel's analog preamplifier. Turn the knob clockwise to increase the gain and counterclockwise to decrease the gain.

Level Indicator

This LED bar graph shows the approximate level of the channel in dB.

Settings Knob

Turning this knob will change the setting value for the setting currently selected on the LCD display. Turn it clockwise to increase the value and counterclockwise to decrease the value. Refer to Figure 3 and the **LCD**

Display section to learn more about changing the settings.

On / Off Button

This button lights up red when the channel is off and lights up as green when the channel is on. Push the button to change its state and turn the chosen channel on or off.

Motorized Fader

Move the fader up and down to increase and decrease the fader level value. This value is displayed at the bottom of each channels box on the LCD display.

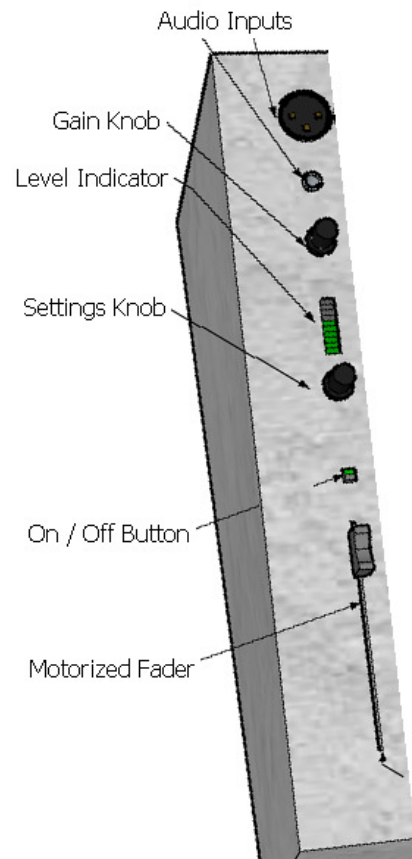


Figure 2: Controls for only one channel

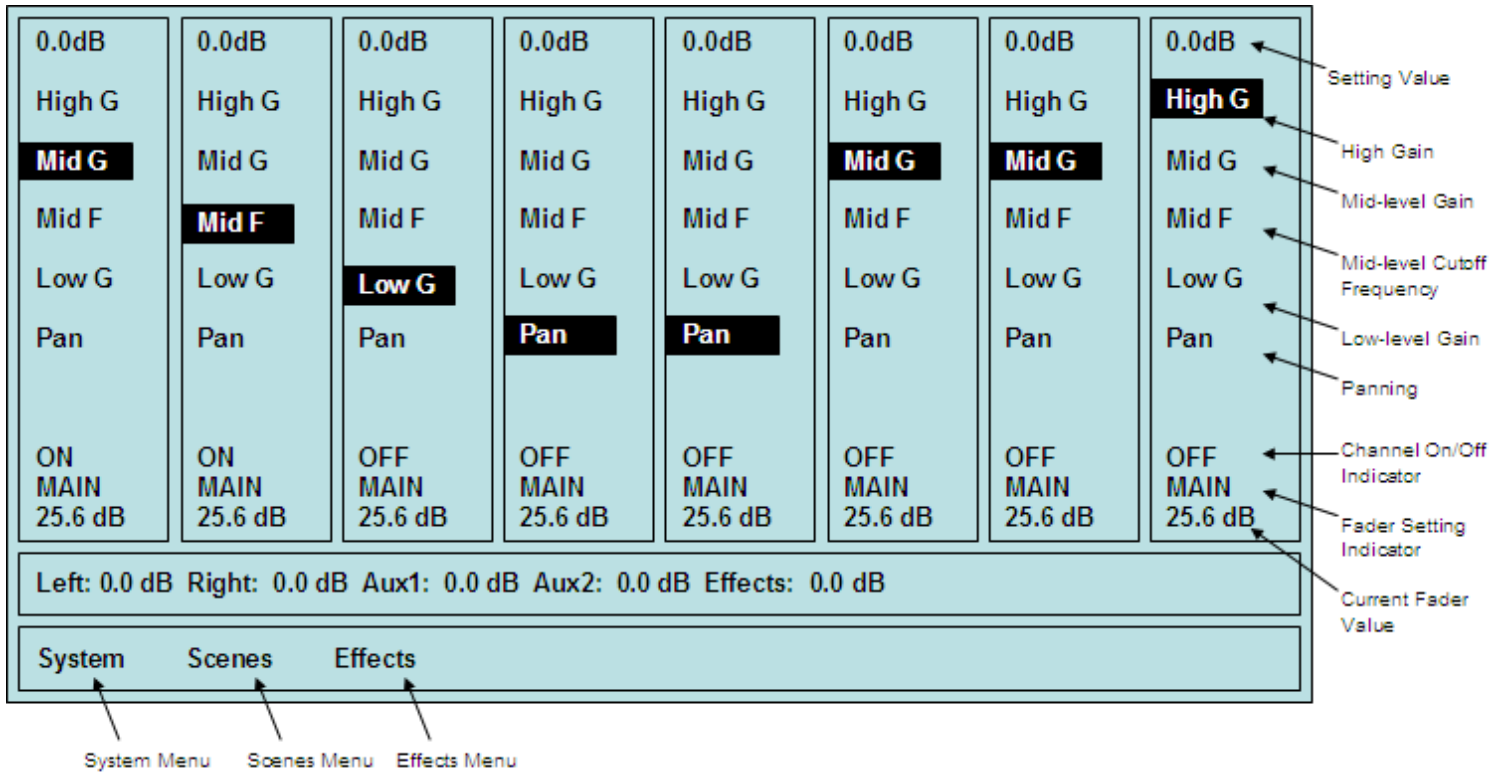


Figure 3: LCD Display simulation. The settings for each of the eight channels are displayed in eight boxes on the top of the display. The setting value of the highlighted setting is adjustable by the settings knob of that channel. The current setting value is displayed in dB at the top of the box. Each channel has a pushbutton below the settings knob which controls whether the channel is ON or OFF. Keyboard shortcuts control channel and main fader modes. Current fader values are displayed at the bottom of each channel's display. Main and effects fader values are shown below the channel indicators. Menus are on the bottom row.

LCD Display

This displays useful information about the Drink Mixer's current mix. See Figure 3 for a simulated display. The settings for each of the eight channels are displayed in eight boxes on the top of the display. The boxes are in order from left to right with the left most box containing information about channel one. The first value in each box is the setting value for the setting that is currently highlighted. The settings you can choose between are High G, Mid G, Mid F, Low G, and Pan. Turn the settings knob to adjust the value of the highlighted setting. You can change which setting is highlighted using the keyboard or the mouse. Refer to **Keyboard Usage** for more details. Below the settings are three more indicators. The first shows whether the channel is on or off. The second and third indicators show which output the channel is being sent to (Main, Aux1, Aux2, or Effects) and at what level.

Each channel's controls may be configured to adjust Main, Aux1, Aux2, or Effects. The user may select one of these settings by using the keyboard or the mouse. This setting also affects the main faders. The main and effects fader values are shown in the box below the channel boxes.

The bottom box on the LCD display allows access to several menus. The *System* menu allows adjustment of the master equalizer for output. The *Scenes* menu allows the user to store and recall six different scene settings. The *Effects* menu contains selections for various effects that can be applied to each channel and the main output such as delay or reverb. It also has settings specific to each effect such as delay time. The selected effect can then be applied at will to any channel and the main output by using the effects fader or the channel faders when in effects mode.

Keyboard Usage

Instead of using the settings knob to change which setting is highlighted on the LCD display, you can rotate through the available settings by pushing the key for the channel number (1-8) on the keyboard, and then selecting 'A', 'S', 'D', 'F', or 'G' for High Gain, Mid Gain, Mid Frequency, Low Gain, and Pan, respectively. You can also rotate through the available settings for each channel's fader functions by pressing 'Q', 'W', 'E', or 'R' for access to Main, Aux1, Aux2, and Effects settings.

Mouse Usage

When using the mouse, click on items on the LCD display to select them.

Saving/Loading Settings

Settings can be saved for use later. To save the scene settings, choose *Scenes* → *Save Scene Settings*. Choose *Scene* → *Load Scene Settings* to load the settings. When the saved settings are loaded, the faders will automatically move to the appropriate setting and the both the LED display and level indicator will indicate the saved settings.



Troubleshooting

Problem	Possible Cause	Solution
LCD display, level indicators, or on/off buttons do not light up.	<ol style="list-style-type: none"> 1. No power. 2. Device's main microcontroller is damaged. 	<ol style="list-style-type: none"> 1. Ensure power cord is not damaged and is connected to a standard 120 VAC outlet. 2. Contact manufacturer for maintenance.
LCD display does not display correct information or is garbled.	<ol style="list-style-type: none"> 1. Microcontroller needs to be reset. 2. Device's main microcontroller is damaged. 	<ol style="list-style-type: none"> 1. Unplug power cord. Wait at least 15 seconds and then plug cord back into the outlet. 2. Contact manufacturer for maintenance.
No sound.	<ol style="list-style-type: none"> 1. No power. 2. There is a nonfunctioning channel. 3. Main microcontroller is damaged. 	<ol style="list-style-type: none"> 1. Ensure power cord is not damaged and is connected to a standard 120VAC outlet. LCD display should be lit. 2. Try using another channel. If none of the channels work, contact manufacturer for maintenance. 3. Contact manufacturer for maintenance.
Output volume changes erratically.	<ol style="list-style-type: none"> 1. Firmware error. 	<ol style="list-style-type: none"> 1. Contact manufacturer. Do not use the Drink Mixer, as sudden changes in volume can damage equipment and your ears.
Faders move erratically.	<ol style="list-style-type: none"> 1. Firmware error. 	<ol style="list-style-type: none"> 1. Remove power from device to prevent fader motor from overheating. Contact manufacturer for maintenance.





Disposal

If the Drink Mixer is damaged beyond repair then please dispose of the device properly. The outer case is aluminum and can be turned in to any recycling center that accepts aluminum cans. Many of the internal components contain materials that are harmful to the environment if not disposed of properly. If no avid digijock(ette) is interested in scavenging the insides of the mixer for parts, please dispose of the Drink Mixer through a household hazardous waste collection center. You can find the center nearest to you at the following website: www.epa.gov/osw/hazard/tsd/mercury/collect.htm.

