KURZWEIL

kcl

Kurzweil Controller Lab

Teacher's Guide
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Kcl
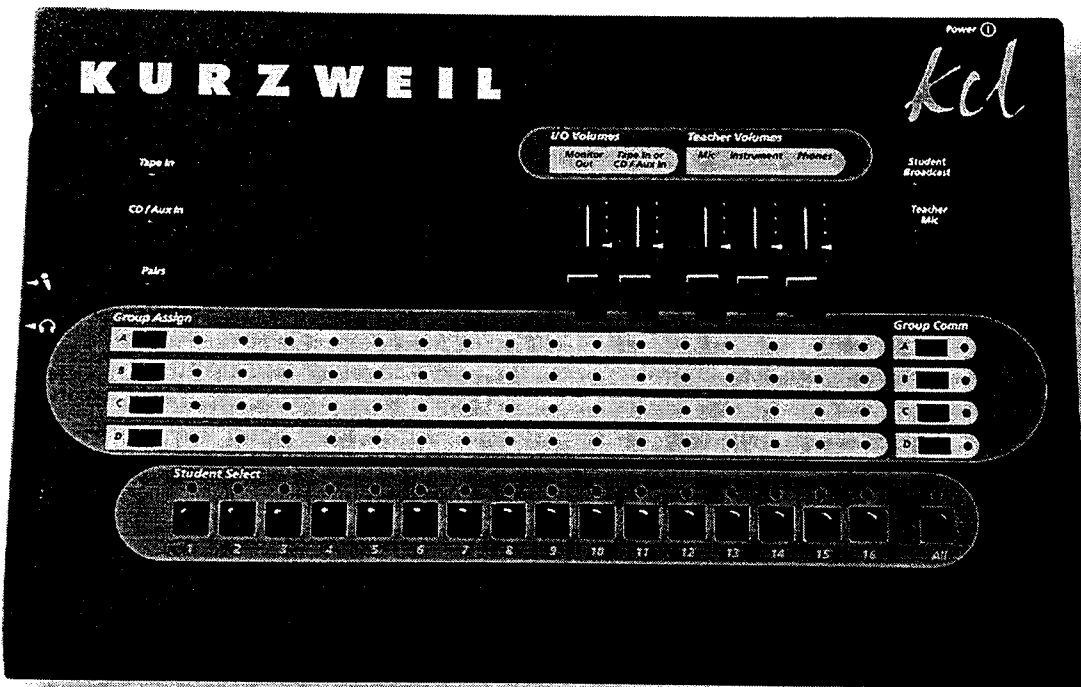
Kurzweil Controller Lab

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K U R Z W E I L

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Chapter 1
INTRODUCING THE KCL

The KCL Lab Controller is a music teaching system which allows a teacher to monitor and instruct up to 16 individual students or 4 groups of students. The system consists of a teacher's control station, headsets for monitoring and communication with 16 students, cables and communications interfaces for connecting to 16 student keyboards.

Features

Two KCL lab controllers can be connected together allowing up to 32 student keyboards.

Students can be assigned to work privately, or in pairs or groups. Individual students, paired students or grouped students can be combined to form larger groups.

A CD player or other audio source may be connected to the system for playing instructional or reference material.

An audio recorder may be connected to the system for recording lab sessions or performances.

The lab controller is intuitive and does not require additional computer hardware or software.
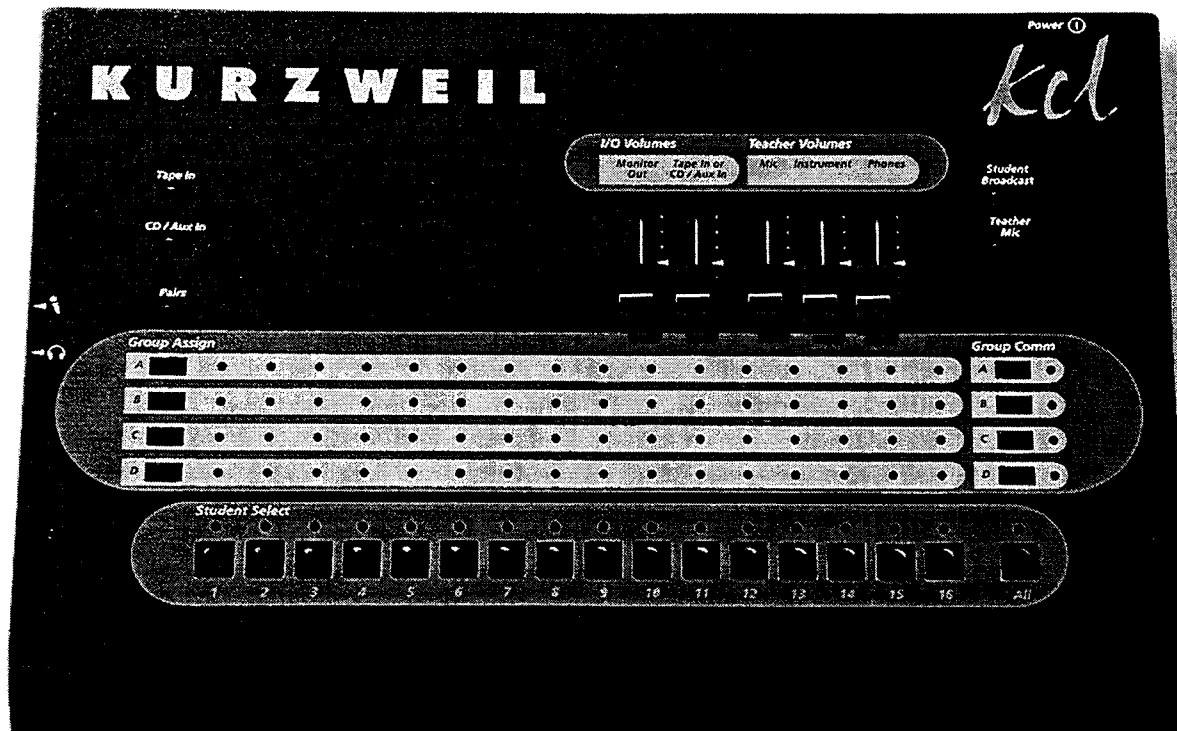
Chapter 2
QUICK START

The following section outlines the input and output connectors, the front panel controls and the front panel switches. For a more detailed description of how the controller works refer to Chapter 4 (OPERATION OF THE CONTROLLER).

CONNECTIONS

Following is a description of what each input or output connection does and what it should be connected to.

Not all the connections are necessary to make the system operational. For instance, an audio recorder may not be available to record lab performances or a small public address system or stereo system may not be available for external monitoring. However, a CD player may be useful for reference purposes.

Side Panel Connections

• Teacher's Headset
Connect the teacher's microphone cable to the side panel connection identified by the microphone icon. Connect the teacher's headphone cable to the side panel connection identified by the headphone icon.

Rear Panel Connections

(KCL Rear View)
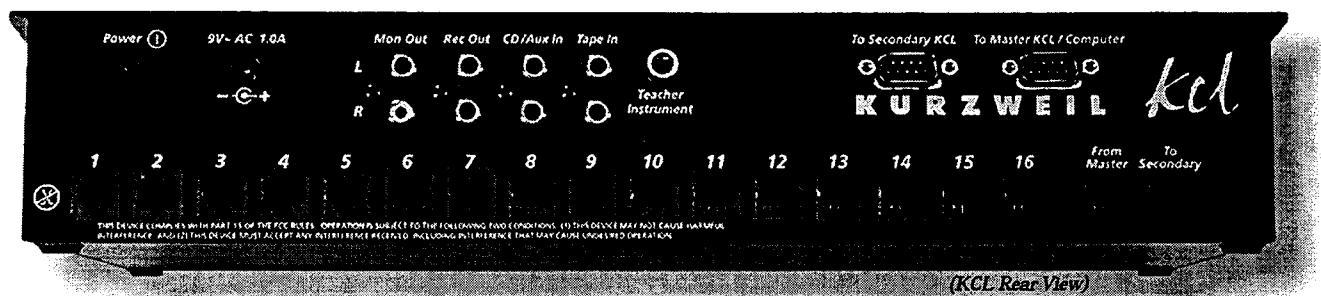
• Power Switch and AC Input Receptacle
The power switch and AC input receptacle are located near the top left corner of the controller. Use the supplied power transformer only. Other power transformers may damage the controller.

• Student Inputs (labeled 1-16)
Connect these audio network connections either to the student's interfaces or directly to the student's Kurzweil Troubador keyboard using the supplied RJ-45 cables (8 conductor telephone type cables). These connections carry audio to and from the Master controller and the student's keyboards and student interfaces.

• **Teacher's Instrument**
Connect this input to the teacher's keyboard Main Output.

• **Monitor Out**
Connect these outputs to an external monitoring system: public address or stereo system. These connections allow external monitoring of the tape input, CD/Auxiliary input, teacher's instrument and student instruments, and teacher's microphone when selected.

• **Record Out**
Connect these outputs to the inputs of a recording device: audio tape recorder or digital recorder. These connections allow recording of the lab session to a recording device when connected. Routes audio from the teacher's microphone, teacher's instrument and student instruments when selected.

• **Tape Input**
Connect these inputs to the outputs of a recording device: audio tape recorder or digital recorder. These connections allow monitoring of a recording device when connected.

• **CD/Auxiliary Input**
Connect these inputs to the outputs of a CD player or auxiliary sound source. Allows monitoring of a CD player or auxiliary audio source when connected.

• **From Master**
Connect this audio network connection to the Master Controller RJ-45 jack labeled To Secondary when more than one controller is required. These connections carry audio to and from the Master controller.

• **To Secondary**
Connect this audio network connection to the Secondary Controller RJ-45 jack labeled From Master when more than one controller is required. These connections carry audio to and from the Master controller.

• **To Master KCL/Computer**
Connect this computer network connection to an IBM computer's serial port only if you have software written specifically for the KCL.

Also connect this computer network connection to the Master Controller 9 pin D-sub jack labeled From Secondary KCL when more than one controller is required and only if you have software written specifically for the KCL.

These connections carry serial data to and from the Master controller, the Secondary controller and a computer.
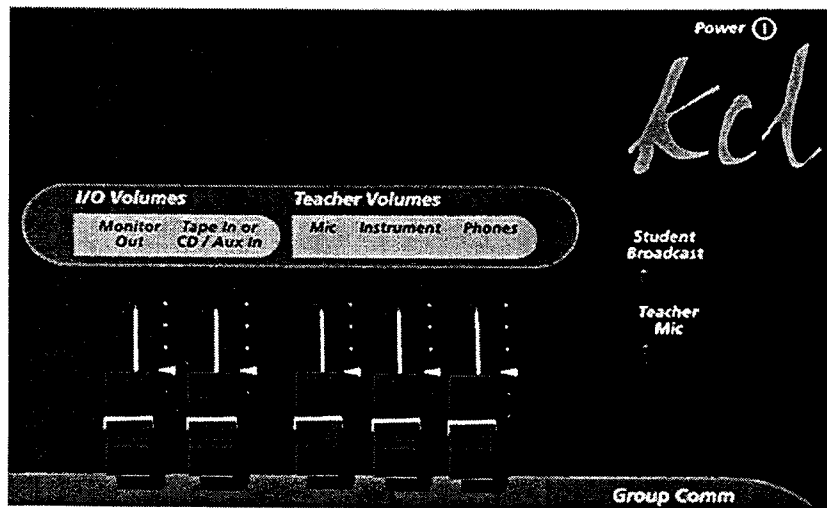
• **To Secondary KCL**
Connect this computer network connection to the Secondary Controller 9 pin D-sub jack labeled From Master KCL/ Computer when more than one controller is required. These connections carry serial data to and from the Master controller.

DESCRIPTION OF FRONT PANEL CONTROLS

Teacher Volumes

• **Mic**
Controls the level of the teacher's microphone.

• **Instrument**
Controls the level of the teacher's instrument.

• **Phones**
Controls the level of the teacher's headphones.

I/O Volumes

• **Monitor Out**
Controls the audio level sent to an external monitor system.

• **Tape/CD Aux In**
Controls the audio level received from a tape recorder or CD player/auxiliary input, whichever is selected.

DESCRIPTION OF FRONT PANEL SWITCHES

Front Panel Switches

• **The Student Selector (labeled 1-16)**
Allows any combination of individual students, paired students or grouped students to be selected together. Only selected individual students, paired students or grouped students can hear or communicate with the instructor.
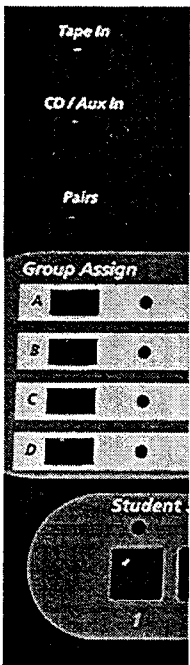
Any selected students, whether individual students, paired students or grouped students can hear each others instruments and talk to each other.

• **Tape In**
Selects the tape input.

• **CD/Aux In**
Selects the CD/auxiliary input.

• **Pairs**
When selected, assigns all 16 students to 8 groups of 2 (1 & 2, 3 & 4, 5 & 6 etc.). One or more pairs of students can be selected. Only selected pairs can hear or communicate with the instructor. Pairs overrides group mode.

• **Group Assign**
Students can be assigned to only one of four groups: A, B, C, or D. Students assigned to a group can hear only members of their group unless Group Comm is active and more than one group is selected.

To assign a student to a group, press and hold the desired group assign button. While holding the group assign button press the buttons of the students you wish to assign. An LED will illuminate for each assignment.

To unassign a student to a group, press and hold the desired group assign button. While holding the group assign button press the buttons of the students you wish to unassign. The associated LED will turn off.

To change a group assignment, press and hold the new group then change the student's assignment by pressing the student's button. The illuminated LED will follow the new assignment.

To clear all group assignments, press and hold for several seconds, ALL and #16 buttons.

• **Student Broadcast**
Broadcasts the audio from any selected students, and the teacher's microphone if selected, to all students.

• **Teacher's Mic**
Press to activate the teacher's microphone.

• **Group Comm**
To select and communicate with one or more groups of students, press the Group Comm buttons for the desired groups. Only selected groups can hear or communicate with the instructor.

• **All**
All students can hear only the teacher's instrument, their own instrument, and teacher's microphone when selected. All overrides pairs and group mode.
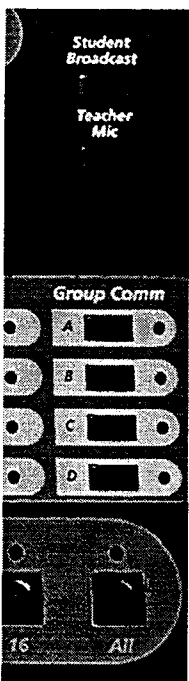
Chapter 3
SETTING UP THE SYSTEM

The QUICK START section describes what the input and output connectors do and what they connect to. Additional accessory equipment such as an audio recorder, a CD player or an external monitoring system can also be connected to the lab controller.

As a general rule, it is good practice to make connections with the power OFF.

Initially set all keyboard volumes to maximum. Adjust them as necessary.

Check Your Packing List
First check that you have received all the items on your packing list.

Connecting the Basic System

The Teacher's Keyboard and Lab Controller

Place the teacher's keyboard and the KCL controller in a central location and connect the supplied power transformer to the controller's power input receptacle located on the rear panel. Connect the teacher's keyboard main output to the lab controller input labeled Teacher Instrument. Connect the teacher's headset to the inputs on the side of the controller identified by the microphone icon and the headphone icon.

The microphone jack has only a tip and sleeve connector. The headphone jack has a tip, ring and sleeve connector.

Power on the teacher's keyboard then the lab controller. Play the teacher's keyboard or set it to play its internal demo, then adjust the Teacher Volume controls labeled Instrument and Phones for a comfortable listening level. Activate the Teacher Mic button then talk. Adjust the volume control labeled Mic for a comfortable listening level.

The Student Keyboards

The Kurzweil Troubador keyboard interfaces directly with the KCL and does not require an external interface. Jacks are located on the left underside of the keyboard. Power off the lab controller before making any connections.

Next place the student keyboards within 30 feet of the teacher's controller. A standard 30' cable connects the keyboards to the teacher's controller.

Number the student keyboards from 1 to 16 so the teacher can read the numbers from where the controller is positioned. Connect student keyboard #1 to input #1 of the controller using the supplied 8 conductor telephone type cable. Then connect keyboard #2 to input #2 of the controller and so on through keyboard #16. Connect the supplied headset to the student keyboard according to the labeling.

It is possible to use keyboards other than the Troubador with the KCL. These student keyboards may not have an RJ-45 telephone type connector that allows direct connection to the controller. These keyboards require a student interface box with an attached 1/4 inch audio cable. Connect the student interface box to the appropriate numbered input on the lab controller using the supplied 8 conductor telephone type cable. Connect the 1/4 inch audio cable from the student interface box to the main output of the student keyboard. Connect the supplied headset to the student interface box according to the labeling. The interface box has an internal volume adjustment which is normally set for maximum at the factory. A small slot type screwdriver is required if adjustment is necessary.

Power on all the keyboards first then power on the lab controller to eliminate any noises that may be generated when the keyboards are first turned on. Student interface boxes obtain their power from the lab controller.

For each student keyboard or keyboard/interface combination, play the keyboard then set the keyboard to a comfortable listening level using the supplied headsets.

Set all of the keyboard volumes to about the same level. You can adjust the microphone level on the bottom left side of the Troubador keyboard. Keyboards that use an interface box have no switch or level control for the microphone. To test the student microphone speak into it.

Testing the Basic System

Once all the student keyboards, interfaces and headsets have been tested, it is necessary to check that the lab controller is receiving audio from all the student keyboards and the students can hear the teacher's microphone and instrument. It will be helpful to have an assistant help you.

Start at keyboard #1 then work through to #16.

Select student #1 to the Student Selector row. The LED will illuminate. Have the assistant wear the student headset, speak into the student microphone then play the student keyboard. Adjust the student volumes as necessary.

Activate the Teacher Mic and speak. Play the teacher's keyboard. Verify the assistant can hear you speak and can hear you play. Adjust the teacher's volume controls as necessary.

Once the levels are comfortable deselect the first student then select the next student keyboard to be checked. Try to keep all student keyboards and microphone at the same approximate level. Have your assistant move to that keyboard and repeat the same procedure. When all the keyboards have been checked the basic system is operational.

Connecting CD Players and Auxiliary Sound Sources

Connect the ouputs of a CD player or auxiliary sound source to the controller inputs labeled CD/Aux In. Select the lab controller switch labeled CD/Aux In. Play the CD or sound source then adjust the I/O Volumes control labeled Tape/CD Aux In for a comfortable listening level.

Most CD players do not have a volume control but auxiliary sound sources may. If there is a volume control on the CD player or sound source adjust it for normal playback level, then adjust the Tape/CD Aux In volume on the KCL.

Please note that this volume control is also shared by a tape or digital recorder if one is connected to the Tape In jack.

Connecting a Recording Device

Connect the outputs of the recorder to the inputs of the lab controller labeled Tape In. Connect the outputs of the lab controller labeled Rec Out to the inputs of the recorder.

First set the playback level of the recorder with a pre-recorded tape or digital media if the recorder has an adjustable output. Select the lab controller switch labeled Tape In. Adjust the I/O Volumes control on the lab controller labeled Tape/CD Aux In for a comfortable listening level.

The record output level from the lab controller is fixed so set the record level on the recorder using the following method. Assuming the teacher's keyboard has already been set up, play the teacher's keyboard or play the internal demo on the teacher's keyboard then adjust the record level on the recorder for normal operation. It is good practice to monitor the record levels on the recorder from time to time to ensure they still remain within the normal operational levels.

Connecting an External Monitoring System

Connect the outputs of the lab controller labeled Mon Out to the auxiliary inputs of a stereo system or to the appropriate inputs of a professional monitoring system. Refer to any documentation for the stereo system or monitoring system if necessary.

Assuming the teacher's keyboard has already been set up, play the teacher's keyboard or the internal demo on the teacher's keyboard then adjust the I/O Volumes control on the lab controller labeled Monitor Out and the volume control on the monitoring system for a comfortable level.

Please note that the teacher's microphone may feed back if the monitoring system is set for a very loud listening level.

Chapter 4
OPERATION OF THE CONTROLLER

The following section outlines the operational use of the controller.

The topics discussed are:

Re-initialization
Important Controls and Switches
Practice Mode
Monitoring a Single Student
Monitoring Multiple Students
Demonstrations and Performances
Recording a Class Performance
External Monitoring

Re-initialization

To return the lab controller to its factory default settings press and hold for several seconds, the ALL and #16 buttons.

Important Controls and Switches

Volume Controls

Phones
Use the volume control labeled Phones to adjust the volume of the teacher's headphones.

Mic
Use the volume control labeled Mic to adjust the volume of the teacher's microphone.

Instrument
Use the volume control labeled Instrument to adjust the volume of the teacher's instrument.

Important Switches

Teacher Mic
To communicate with one or more students press the button for the student or students on the Student Selector row then press the Teacher Mic button and talk.

All
To communicate with all students press the All button, activate the Teacher Mic button and talk. Students can hear only the teacher's instrument, their own instrument, and the teacher's microphone when All is selected. All overrides pairs mode and group mode.

Practice Mode

• The controller is initially set for Individual Student Practice mode. Practice mode allows students to practice in private. Students can only hear their own instrument and cannot talk to each other. No LED's on the Student Selector are illuminated, Pairs mode or Group Communication mode is not active when the controller is in Individual Student Practice mode.

• To return the lab controller to its factory default settings press and hold for several seconds, the ALL and #16 buttons. Any group assignments will be erased.

It is also possible to have students practice in pairs or groups . These topics will be discussed later.

Monitoring a Single Student

• To monitor a single student, press the button for that student on the row of switches labeled Student Selector. The LED for that student will illuminate to indicate the selection.

The teacher can hear only the selected student's instrument and microphone. To communicate with the student press the Teacher Mic button and talk. Student microphones are always active so they can respond immediately. Other students can continue to practice in private and cannot hear the conversation between the teacher and selected student.

• To monitor a different student, deselect the previous student then select the new student to be monitored. The appropriate LED's will turn off or illuminate.

Monitoring Multiple Students

• There are several ways to monitor and communicate with more than one student.

Individual Selections

• The simplest way to monitor more than one student is to press the buttons for the students you wish to monitor using the Student Selector switches.

The LED's will illuminate to indicate the selection. Students who are selected can hear each others instruments and they can talk to each other.

• To communicate with the selected students press the Teacher Mic button and talk. Students who are not selected can continue to practice in private and cannot hear the conversation between the teacher and selected students.

Pairs

It is possible to assign students to pairs for practicing and monitoring.

• To group the students into pairs, press the Pairs button. The Pairs LED will illuminate to indicate selection. Students are paired numerically starting at 1 & 2.

When Pairs mode is activated, any previously selected individual students are temporarily deselected clearing the Student Selector for a new choice. Students can now practice in private pairs without any selection.

• To return to the previous mode deselect Pairs. Any previous individual selections will be restored. Any previous Group Communication selections will need to be reselected.

Groups

It is possible to assign students to groups for performing duets, trios, quartets or larger ensembles.

Students can be assigned to only one of four groups: A, B, C, or D. Students assigned to a group can only hear each others instruments and talk to members of their own group (practice mode) unless Group Comm is active.

• To assign a student to a group, press and hold the desired group assign button. While holding the group assign button press the buttons of the students you wish to assign. An LED will illuminate for each assignment.

• To unassign a student from a group, press and hold the desired group assign button. While holding the group assign button press the buttons of the students you wish to unassign. The associated LED will turn off.

• To change a group assignment, press and hold the new group and then change the student's assignment by pressing the student's button. The illuminated LED will follow the new assignment.

• To clear all group assignments, press and hold for several seconds, the ALL and #16 buttons.

Group Communication

Once students have been assigned to a group they can be monitored and the instructor can talk to all members of the group by activating Group Communication for that group.

• To activate Group Communication for a particular group, press the Group Comm button for that group. The LED for the selected group will illuminate and the individual students assigned to the group will automatically be selected on the Student Select row.

Multiple groups can be selected at one time to make a larger group. Any groups not selected to Group Communication will be able to continue practicing in private.

• To deselect any activated group, press the Group Comm button for that group. The LED will turn off and the individual students will no longer be selected on the Student Selector row.

Demonstrations and Performances

Student Broadcast

Student Broadcast allows a student or group of students to perform for the rest of the class. The instructor's instrument may also be heard and the instructor can talk to the students if the Teacher Mic button is activated.

• Press the Student Broadcast button. The Student Broadcast LED will illuminate. Any students selected to the Student Selector row will be able to play for the rest of the class.

• To stop the student broadcast and return to the previous mode of operation, depress the Student Broadcast button. The LED will turn off and the previous settings will be restored.

Performances from Tape or CD

Music from audio tape, CD or another external audio source can be routed to the students. It is presumed that the equipment has already been setup.

• To play a piece of music from audio tape, first select the Tape In button then adjust the volume of the tape recording using volume control labeled Tape In.

• To play a piece of music from CD or another external audio source, first select the CD/Aux In button, then adjust the volume of the recording using volume control labeled CD/Aux In.

• The volume control labeled Tape in or CD/Aux In affects the level of both the tape recorder input and CD/auxiliary audio input, whichever one is selected.

Recording a Class Performance

• To record a class or student performance, first select the students to record by selecting them using the Student Selector row. There is no adjustment on the KCL for the audio going to a tape recorder or digital recorder. Have the class rehearse the piece then adjust the record level at the recorder. Start the recorder then have the class members play their performance. Stop the recorder when the performance is finished.

• To listen to the recording, select the Tape In button, rewind or cue the recording to the start of the performance, start the recorded performance then adjust the volume of the recording using the volume control labeled Tape In.

External Monitoring

An external monitoring system may be connected for students or others who need to monitor the class but do not have headsets connected to the KCL.

• Adjust the audio level going to the external monitoring system using the volume control labeled Monitor Out.

SPECIFICATIONS

Input Output and Interface Connections:

Monitor Out .... *(2) RCA unbalanced mono*
Record Out .... *(2) RCA unbalanced mono*
Auxiliary Input .... *(2) RCA unbalanced mono*
Tape Input .... *(2) RCA unbalanced mono*
Student Inputs (16) .... *RJ-45 (8 conductor telephone type)*
From Master .... *RJ-45 (8 conductor telephone type)*
To Secondary .... *RJ-45 (8 conductor telephone type)*
To Master KCL/Computer .... *9 pin D-sub*
To Secondary KCL .... *9 pin D-sub*
Teacher's Instrument .... *1/4" phone*
Teacher's Microphone .... *mini phone*
Teacher's Headphone .... *mini phone*

Power Requirements .... *9 volts (AC) 1 amp*

Use with Supplied AC Adapter only

Physical Dimensions

Size .... *10.25"D x 15.5"W x 3"H*
Weight .... *3.5 lbs.*