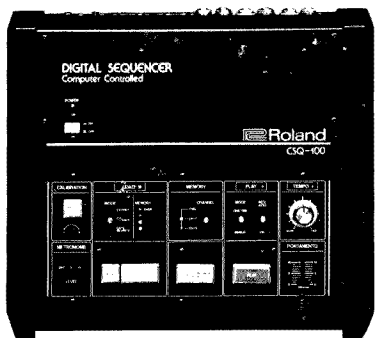


DIGITAL SEQUENCER

CSQ-100

OWNER'S MANUAL



The CSQ-100 is a computer controlled digital sequencer designed for on-stage live performance situations. Sequences may be loaded and played back without breaks in rhythm. The synthesizer keyboard may be used to instantly transpose sequences to any desired key, a feature very useful with arpeggio and bass patterns. The two channel memory allows storage of two sequences which may be treated independently or played in series one after the other. When the sequencer is not running or being loaded, connections are made internally so that the keyboard may be used to control the synthesizer in the normal manner. External control inputs allow the sequencer to be started or to be run step-by-step through the sequence manually from a remote location, a feature very useful in studio work as well as on stage.

BEFORE YOU START / CONNECTIONS

■ CSQ-100

Pitches and note time values may be loaded simultaneously or separately. The CV ONLY load mode may be used for loading pitches in sequences where all notes are to have the same time value. The GATE REWRITE load mode may be used for adding time values to previously loaded pitches, or for correcting time values in a previously loaded sequence. The load mode may be activated

at any point in the sequence so that notes may be added to the end of a previous sequence or correction made without having to do the whole sequence over. The two channels have a maximum capacity of 84 notes each for a total maximum capacity of 168 notes when the two channels are used in series.

■ BEFORE YOU START.....

•The CSQ-100 Digital Sequencer is designed to be used with synthesizers having 1V/oct control voltage input and output, and positive going gate pulse input and output. With the exception of the SH-1000, SH-2000, and SH-3 (or 3A), all ROLAND SYNTHESIZERS meet these requirements.

•If the line voltage in your area is not stable to within $\pm 10\%$ of the voltage requirements shown in the specification list, use a voltage regulator. Consult your local ROLAND dealer when you desire to use the CSQ-100 outside your voltage area.

•All LED's on the front panel will flash brightly for an instant when the power switch is turned on. This is normal and does not indicate a malfunction.

•Do not plug in the power cord or pull it out while the CSQ-100 power switch is on.

•Connect the CSQ-100 and the synthesizer to each other before turning either unit on.

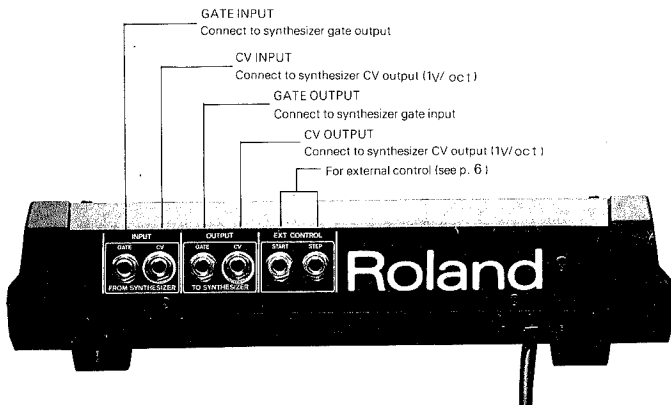
•The data loaded into the CSQ-100 memory will be lost when the power switch is turned off.

•Neon and fluorescent lights induce unwanted noise when placed near electronic music and audio equipment.

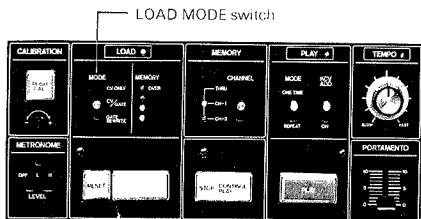
•Avoid using the CSQ-100 in places of high temperature, humidity, and dust.

•Use a neutral detergent for cleaning the case of the CSQ-100. Do not use solvents such as paint thinner.

■ CONNECTIONS



TO PRODUCING A SEQUENCE / THE LOAD MODES



■ TO PRODUCE A SEQUENCE....

(1). Calibrate:

Hold down a key near the center of the synthesizer keyboard; or, tap a key once, then raise the VCA initial gain control so as to produce a continuous sound. Press **PLAY**. If this causes a vibrato-like effect in the synthesizer sound output, adjust the knob below **PLAY** to eliminate this effect. Once adjusted, it will probably not need attention again unless a different synthesizer is used.

(2). Load:

Set the CSQ-100 as shown above. Press **RESET** then **LOAD**. Play a melody on the keyboard, then press **STOP/CONTINUE PLAY**. The time value of the last note in the sequence will be determined by the time elapsed between pressing the last note on the keyboard and pressing **STOP/CONTINUE PLAY**.

If **PLAY** is pressed instead of **STOP/CONTINUE PLAY**, the sequence will be played back immediately without pause.

(3). Play:

Pressing **PLAY** always causes the sequence to start from the beginning. The sequence may be stopped at any point by pressing **STOP/CONTINUE PLAY**. Pressing **STOP/CONTINUE PLAY** again will start the sequence from where it left off.

■ THE LOAD MODES

(1) CV ONLY mode (pitch only)

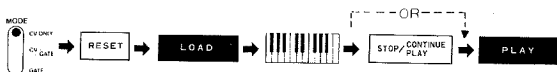
The CV ONLY mode is used when it is desired to load sequences in which all notes are to be the same time value, or when it is desired to load pitches and time values separately. When loading, pitches may be played on the keyboard at any tempo and in any rhythmic pattern. When **PLAY** is pressed, the loaded pitches will be produced as a series of sixteenth notes. If the pitches were played legato (the next key being pressed before the first key is released), the result will be a series of legato sixteenth notes. If the pitches were played detached (non-legato), the gate output of the sequencer would become a square wave. Musically, then, the timing would be:



(2) CV/GATE mode (pitch + time value)

This is the most common loading mode. The sequencer will reproduce the sequence exactly as it is played on the synthesizer keyboard. If mistakes are made in time values, the time values can be done again without disturbing the pitch data by using the

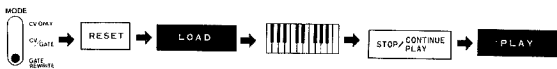
CV ONLY mode:



CV/GATE mode:



GATE REWRITE mode:



(3) GATE REWRITE mode (time value only)

This mode is normally used to alter time values of previously loaded pitches. In difficult passages it may be desirable to load pitches using the CV ONLY load mode, then use the GATE REWRITE mode to add correct time values to the pitches.

Time values are loaded by selecting any convenient key on the keyboard and tapping that key in the desired rhythmic pat-

tern during loading. The easiest way to terminate the GATE REWRITE load mode is to play one extra note at the end of the sequence. The start of this extra note will mark the end of the timing for the last pitch contained in the memory and it will terminate the load mode. For legato where it is desired to have no break in sound between pitches, play on two keys using the technique sometimes used for playing trills on synthesizers where one key is held down continuously while the second key is tapped on and off.

LOADING / THE METRONOME / TRASPOSING

LOADING

The basic loading procedure, then, is:



Remember that the time value of the last note in the sequence is determined by the amount of time elapsed between pressing the last note in the sequence and pressing



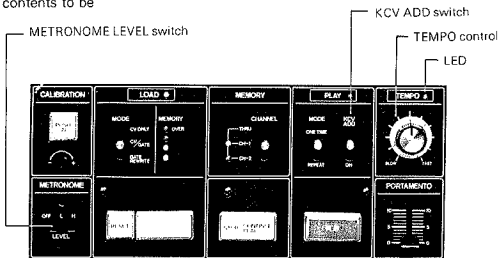
The **RESET** button serves to reset the sequencer at its beginning point for loading.

Pressing **LOAD** starts the metronome (see below) and sets the sequencer in a ready state. The load function itself is not actually triggered until the first key on the keyboard is pressed. This means that if at some time **LOAD** is pressed accidentally, the function may be cancelled by pressing **STOP SEQUENCE PLAY** (or **RESET** or **PLAY**) without causing any of the memory contents to be

changed or erased. It also means that you can listen to the metronome beats as long as needed before beginning to play without having a long rest inserted in front of the sequence.

If the **RESET** button is not pressed when loading, the sequence data will be loaded from the point where the sequencer was last stopped. This means that it is a simple matter to add notes to a sequence or to correct mistakes. For example, to add notes to the end of a previously loaded sequence, play the old sequence through once. When the sequencer stops, press **LOAD**, and play the notes to be added, then terminate in the normal manner.

To correct mistakes or to change notes or time values in the sequence, run the sequencer and stop it on the note just before the first note which is to be changed. In some sequences this may be easier to do if the **TEMPO** control is set at **SLOW**. Press **LOAD**. Remember that the load function is not actually triggered until the first note on the keyboard is pressed. Once pressed, the load function is activated and all sequence data contained in the memory after the start point will be automatically erased.



THE METRONOME

The metronome is activated whenever **LOAD** is pressed. The LED above the **TEMPO** control flashes at quarter note intervals. If the **METRONOME LEVEL** switch is set at L (low) or H (high), an audible metronome beat will occur at eighth note intervals. Since the load function is not actually activated until the first note of a sequence is played on the keyboard, it is possible to press **LOAD** to check the tempo of a sequence before actually running the sequencer in the play mode.

In the CV ONLY (pitch only) load mode the metronome is also activated, but this becomes superfluous since all pitches will automatically be loaded as sixteenth notes regardless of how they are played.

TRASPOSING

The KCV ADD switch in the **PLAY** section of the front panel allows the summing of the sequencer output with the control voltage (KCV) output of the synthesizer keyboard controller. In musical terms, this means that when the KCV ADD switch is ON, the sequence being produced by the sequencer can be freely transposed to any key by simply pressing keys on the keyboard.

When using the KCV ADD function with most ROLAND synthesizers, pressing the middle C key will cause the sequence to be reproduced in the key that was used when it was loaded. Pressing the D above middle C will transpose the sequence up a major second, and so on. If the original sequence was loaded in the key of C, pressing F will put it in the key of F, pressing G will put it in the key of G, etc.

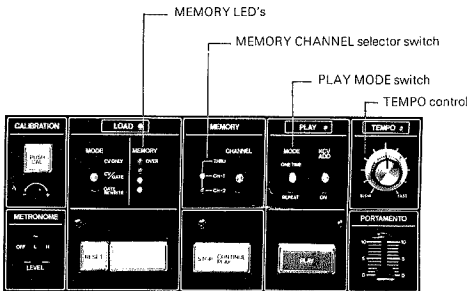
The transpose function is based on the standard in which a voltage of +2 volts from the keyboard will produce the pitch of middle C when the VCO is set for the 8' range. The ROLAND SH-5 and System 100 (Model 101) use different voltages to produce the pitch of middle C. This means that with the SH-5, pressing F will produce the sequence in its original key, and on the System 100, pressing E will do the same.

THE MEMORY / MORE ABOUT THE TEMPO CONTROL / PORTAMENTO

■ THE MEMORY

The memory has been divided into two channels so that it is possible to load two completely independent sequences. The channel selection for loading and playback of these two sequences is controlled by the MEMORY CHANNEL selector switch.

As an example of how the two channels can be put to very effective use, set the CHANNEL switch at CH-1 and load a C major arpeggio. Next, set the CHANNEL switch at CH-2 and load a C minor arpeggio. Set the PLAY MODE switch at REPEAT and the KCV ADD switch at ON; press **PLAY**. The keys on the keyboard will now decide the root of the chord being produced and the MEMORY CHANNEL selector switch will control whether the chord is major or minor.



Note that if the CHANNEL switch is changed in the middle of the sequence when the sequencer is running, the actual channel change will be delayed until the end of the first sequence. In the above example, if the CHANNEL switch were changed to CH-2 just after the major arpeggio began, the minor arpeggio would not begin until after the last note of the major arpeggio.

Each channel has a maximum capacity of 84 notes. If the MEMORY CHANNEL switch is at THRU, the two channels can be used

in series for a total maximum of 168 notes. These maximum values remain true as long as all notes in the sequence are equal to quarter notes or less in time value. Notes of longer time value require more memory space, thus the maximum number of possible notes will decrease.

The four MEMORY LED's in the LOAD section of the front panel act as a guide as to how much memory space has been used in programming a sequence. Each LED represents 1/4 of the memory space for each

channel. When the bottom LED lights, 1/4 of the memory space in the selected channel has been used. When the next LED lights, 1/2 of the channel memory has been used, and the third LED lights when 3/4 of the memory is full. When the selected channel is full, the playing of the next note will terminate the load function and activate the red MEMORY OVER LED. If both channels are used (MEMORY CHANNEL switch at THRU), the sequence of green LED's will occur twice before the MEMORY OVER LED lights.

■ MORE ABOUT THE TEMPO CONTROL

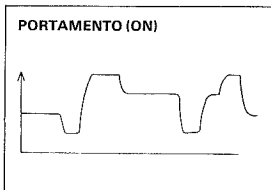
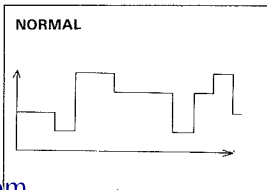
The setting of the TEMPO control becomes rather important when loading sequences which are either very fast or very slow. If a very fast sequence is loaded with the TEMPO control set at SLOW, there may be many notes missing from the sequence. If a very slow sequence is loaded with the TEMPO control at FAST, the notes will all effectively be longer than quarter notes, thus the effective memory space will be decreased.

The above can be partially demonstrated by the following experiment. Set the LOAD MODE switch at CV ONLY. Set the TEMPO control at FAST (maximum clockwise). Press **RESET**, then **LOAD**. Use your finger to run glissandos of medium speed (perhaps one or two octaves per second) up the keyboard several times. This, of course, is far too fast for the computer to accurately detect pitches, but when the sequence is played, it can be seen that the se-

quencer is trying to reproduce all the pitches played. Now try the same thing with the TEMPO control set at SLOW. The first thing you will notice is that you can run quite a few more glissandos before the memory space is all used up, and when the sequence is played, you will see that a great many of the notes have failed to register in the memory.

■ PORTAMENTO

Portamento is the sliding of a note from one pitch to another. The PORTAMENTO control adds portamento effects to the control voltage (pitch) output of the CSO-100.



EXTERNAL CONTROL

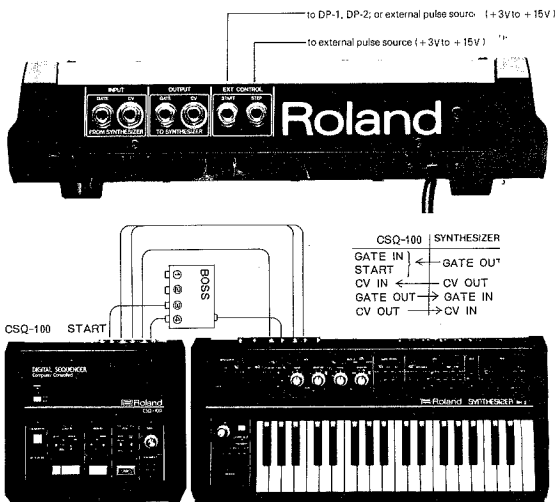
■ EXTERNAL START

The START jack allows the start of the sequencer play function from an external source. The input circuit of the START jack is designed to accept shorting types switches such as the ROLAND DP-1 or DP-2, or to accept a positive going pulse (+3V to +15V) from the synthesizer.

If you decide to use some other type switch, remember that the DP-1 and DP-2 are of the normally closed type and open only when the pedal is depressed. This means that the START jack input is designed to be continually shorted and that opening the circuit will trigger the start function.

The drawing at right shows an example of using the external start function.

In this example, the sequencer will start each time a key on the keyboard is pressed. This is useful for such things as the arpeggio example shown on page 5 where you want to make sure that the new arpeggio starts as soon as a new key is played.



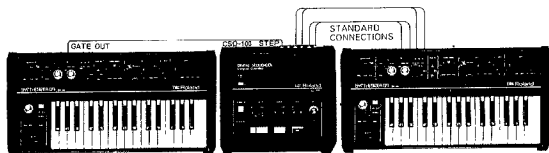
■ EXTERNAL STEP

The STEP jack allows you to use an external pulse source for manually stepping through the sequence one step at a time or for synchronizing the sequence with some external source such as an analog sequencer or rhythm box.

The input circuit of the STEP jack is designed to accept positive going pulses (+3V to +15V). The following are a few examples of how this function might be used.

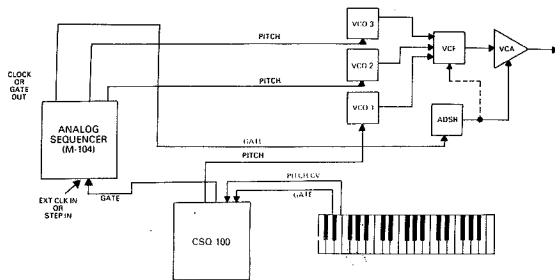
Example: Generating two voices

Load pitches into the sequencer with the first synthesizer (shown on the right) in the normal manner. Next, press **HEAT** and play a melody in counterpoint on the second synthesizer. The rhythm of the previously loaded pitches will follow the rhythm being played on the second (left) synthesizer.



Example: Using an analog sequencer for three voice chords

Load pitch and rhythm for the first voice into the CSQ-100 in the normal manner. Set the analog sequencer voltage registers in one channel for the second voice and the registers in the other channel for the third voice. Set the analog sequencer at the step just before the start point of the sequence, then press the CSQ-100 **PLAY** button. This arrangement is good for such things as brass fanfares.



SPECIFICATIONS

Maximum storage capacity:

168 notes (or 84 notes per channel)

Calibration:

CALIBRATION button
CALIBRATION ADJUSTMENT control

Metronome:

LED tempo indicator (quarter notes)
Metronome LEVEL switch

Load Section:

LED load indicator
LED memory indicator (x4)
LOAD MODE switch (CV ONLY; CV/
GATE; GATE REWRITE)
RESET button
LOAD button

Memory Section:

LED memory channel indicator (x2)
CHANNEL SELECTOR switch
(THRU; CH-1; CH-2)
STOP/CONTINUE PLAY button

Play Section:

LED indicator
PLAY MODE switch (ONE TIME;
REPEAT)
KCV ADD switch (ON; OFF)

Other controls:

POWER switch
PORTAMENTO control
Pilot lamp
TEMPO control

Jacks:

CV OUTPUT (1V/oct -2V to +8V)
GATE OUTPUT (off; 0V; on: +15V)

CV INPUT (1V/oct 0 to +5V)

GATE INPUT (threshold: +2.5V)

START PULSE INPUT (close –
open; or +15V/pulse)

STEP PULSE INPUT (+15V/pulse)

Power consumption: 8W

Dimensions: 345(w) x 305(d) x 95(h) mm
(13.6" x 12.0" x 3.7")

Weight: 2.7 kg (5.94 lbs.)

Accessories supplied: 1.5m dual cord (x2)

Specifications are subject to change
without notice.