Q962 Sequential Switch

Sep 2014

The Q962 Sequential Switch provides the functionality of a Moog 962 which includes converting the Q960 Sequential Controller to a full 24 stages by alternately selecting one of three rows. The Q962 can also be used as a general purpose latch, shifter, and signal selector among other logic functions.

Stages can be selected with a manual push-button, a trigger input, or with the shift input. A lamp and trigger output is activated when a stage is On. A signal selector section can switch one of 3 input signals to a common output determined by which stage is selected. This 3-to-1 switch can also be used in the reverse direction as a 1-to-3 switch.

Specifications

Panel Size: Single width 2.125"w x 8.75"h.
Trigger Input Thresholds: 1.5V
Trigger Input Levels: -15V to +15V
Trigger Output Levels: 5V
Power: +15V@40ma, -15V@1ma, +5@1ma.

Controls and Connectors

Trigger Inputs
A trigger (Gate) input signal to one of these jacks selects the appropriate stage.

Trigger Outputs
A trigger (Gate) output signal is provided when the appropriate stage is selected.

Lamps
Shows which stage is selected.

Trigger Input Buttons
Allows manual selection of each stage.

Shift Input
A trigger (Gate) at this input advances the selected stage. Shifting is either 2-stage or 3-stage depending on if a plug is inserted into signal input #3. If there is no plug inserted into signal input #3, shifting will occur between stages 1 and 2 only. If there is a plug in serted into signal input #3, shifting will occur between all three stages. Stage 3 can be selected by a trigger input or a manual button even if a plug is not inserted into signal in put #3.

Signal Inputs
These are the inputs to the 3-to-1 (or 1-to-3) signal switch one of the inputs are routed to the output depending on which stage is selected. Signals can go both directions. When a plug is inserted into input #3, shifting will occur between stages 1 and 2 only, otherwise between all three stages.

Signal Outputs
The selected input signal is presented at both output jacks. This can also be used as an input if you are using the switching section as a 1-to-3 switch.

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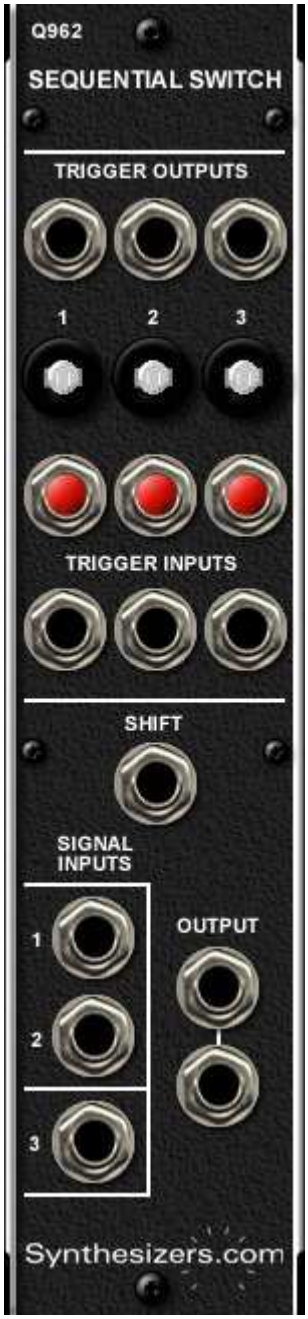
The Q962 is like a 3-stage sequencer where each stage produces a trigger (gate) output, and routes a signal. The primary use for the Q962 is to switch between rows of a Q960 Sequencer for 16-24 stage sequencing.



A trigger (gate) output turns On when its stage is active.

Lamps indicate which of the 3 stages is active.

Buttons allow manual activation of each stage.

Trigger inputs allow other signals (gates) to activate specific stages.

A trigger (gate) pulse at the Shift input causes the Q962 to activate the next stage.

One of three signal inputs is connected to the Output depending upon which stage is active.

If a plug is inserted into Input #3, the Q962 will shift in 3-stage operation. If no plug is inserted, the Q962 will only shift between stages 1 and 2.

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Usage and Patch Tips

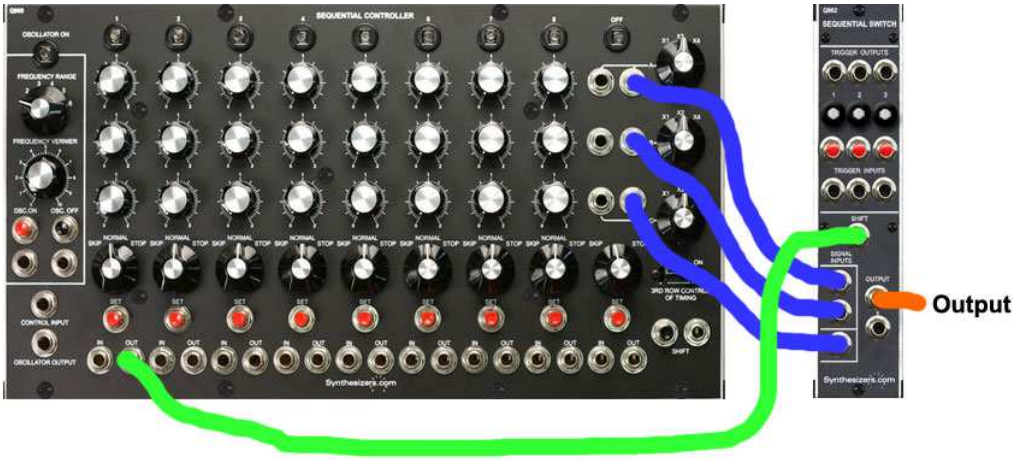
The Q962 is basically a 3-stage sequencer with a 3-to-1 signal switch.

The Q962 will operate as a 2-stage shifter unless a plug is inserted into signal input #3 which converts the module into 3-stage operation.

The primary function of the Q962 is to select the rows of a Q960 sequential controller to emulate a 24-stage sequencer. This is accomplished by patching a trigger output from the Q960 to the shift input on the Q962. Then each of the 3 rows on the Q960 are patched into the 3 signal inputs on the Q962. The signal output on the Q962 now becomes the 24-stage voltage output.

Unlike the Moog 962, the Q962's signal switch section can operate in both directions. This allows a signal to be directed to one of three different outputs, or one of three signals to be sent to a single output.

Typical 24-Stage Patch



Single/Double Shift Jumper

A 3-pin connector on the circuit board is jumpered at the factory for Single-Shift operation: every shift signal generates a shift of stages. Move this jumper to the other position (or add a switch) to invoke Double-Shift mode which requires 2 signals to generate a shift of stages.

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Calibration and Testing

This module requires no calibration.

Make sure Shift jumper is set to Single Shift for this test.

1. Pressing buttons should light lamp above button.
2. Each Trigger output should provide +5V when stage is on, 0V when off.
3. A 5V trigger input to any stage should select that stage.
4. Input a low-frequency square wave into the shift input.
5. Stage #1 and #2 should shift back and forth.
6. Insert a patch cable into Signal Input #3 to shift #1,#2,#3.
7. Patch a 10VPP 1Khz Triangle signal into Signal Input #1.
8. Select stage #1 with the button.
9. The signal should appear at the Signal Output Jack.
10. Repeat this for Stage #2 and Stage #3.

Power Connector

6 pin .1" MTA type connector made by AMP. Available from Mouser Electronics or Digi-Key. Modules have a male PCB mount connector and cable harnesses have a female.

Part Numbers:
Female cable mount: #6404416
Male PCB mount: #6404566

Pinout:
1 = +15v
2 = key (pin removed)
3 = +5v
4 = gnd
5 = -15v

Not all voltages are used on all modules.

PC Board Layout