# *StudioComm*

from **STUDIO TECHNOLOGIES INC.**

Model 58 & Model 59

StudioComm for Surround Sound

As the production of multi-channel "surround sound" audio material becomes more prevalent, the need for monitoring these sources becomes imperative for more and more facilities. Whether it's 4-, 6-, or 8-channel formats, a means to select input sources, insert support devices into the audio path, and control the output level to monitor loudspeaker is required. Studio Technologies has addressed this need with the StudioComm Model 58 Central Controller and Model 59 Control Console. Using these components a system can be configured to meet a facility's exact monitoring requirements.

A StudioComm for Surround system starts with a Model 59 Control Console, a compact but comfortable "command center," that is designed to reside at the operator's location. Using a single 9-pin cable, a Model 59 connects to up to four Model 58 Central Controllers. Each Model 58 supports four 2-channel inputs and two output channels in a single rack space. By selecting two, three, or four Model 58s, 4-, 6-, or 8-channel systems can be created.

The Models 58 and 59 were developed in conjunction with experts in the post-production audio field. The overall goal turned out to be very straightforward: provide the necessary technical performance and features, while keeping it simple to operate! Be certain that users won't have to go through a long "learning curve" before they become efficient. Allow the StudioComm system to be flexible, but not so much as to hinder the "big picture." The end result achieves these goals, providing extensive capability in a simple-to-operate format.
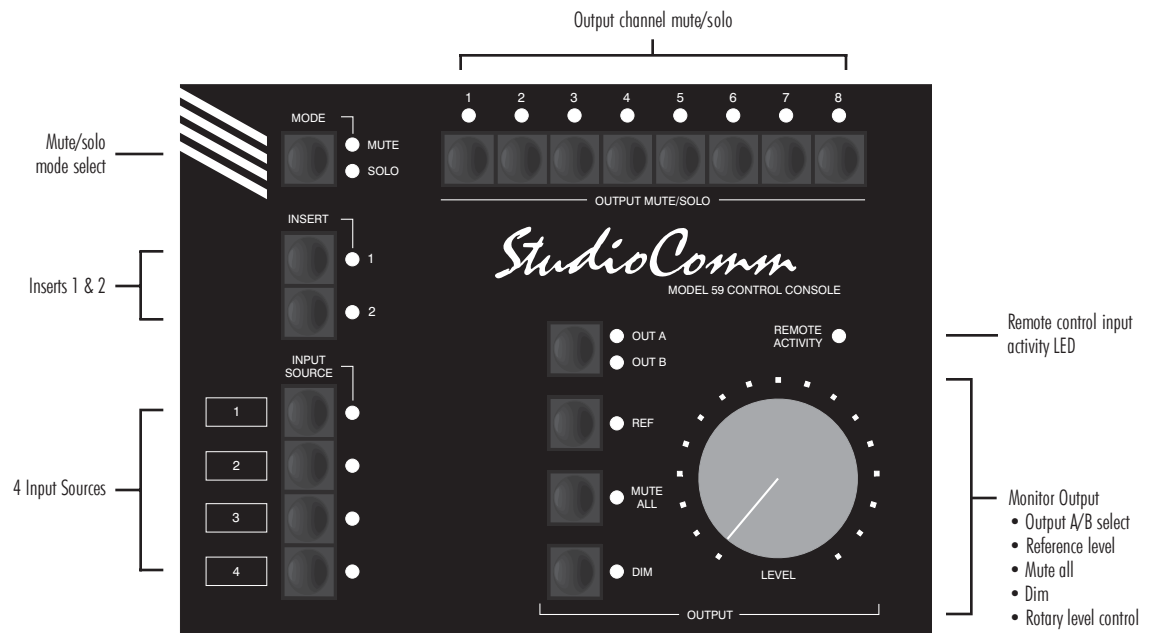
Model 59 Control Console Front Panel

Model 58

Model 58 Central Controller

The Model 58 Central Controller is a single rack-space unit that supports two output channels. Multiple Model 58's are connected together to achieve 4-, 6-, or 8-channel systems. Each Model 58 provides eight inputs, organized as four 2-channel pairs. Two 2-channel insert sections allow connection to external processing equipment, specifically surround-sound encoder-decoder units. The insert sections can also be used for special applications, such as creating a phantom center channel, or used as part of a PLF/solo support function. The 2-channel monitor output section is switched, using electromechanical relays, to allow connection of two separate loudspeaker systems. Protection circuitry provides power-up and power-down protection for the loudspeakers. A 2-channel meter output provides a "reference" signal, and is not affected by the monitor output's level-control circuitry.

The line inputs, insert sections, and monitor outputs are electronically balanced, while the meter outputs are unbalanced. Fifteen-turn trim potentiometers are used to precisely calibrate the input, insert return, and monitor output signals. Audio input, insert, and output connections are made using three 25-pin D-subminiature connectors. The connectors follow an industry-standard multi-channel wiring scheme. Two 9-pin D-subminiature connectors are used in a simple loop-through arrangement to connect the Model 58 to a Model 59 Control Console, as well as to additional Model 58 units.

An 8-bit micro-controller provides the logic "horsepower" for the Model 58. DIP-type switches are used to select the Model 58's unit ID and operating mode. AC mains power is connected directly to the Model 58, which is factory selected for 100, 120, or 220/240V operation. The internal power supply utilizes a toroidal mains transformer for quiet audio operation.
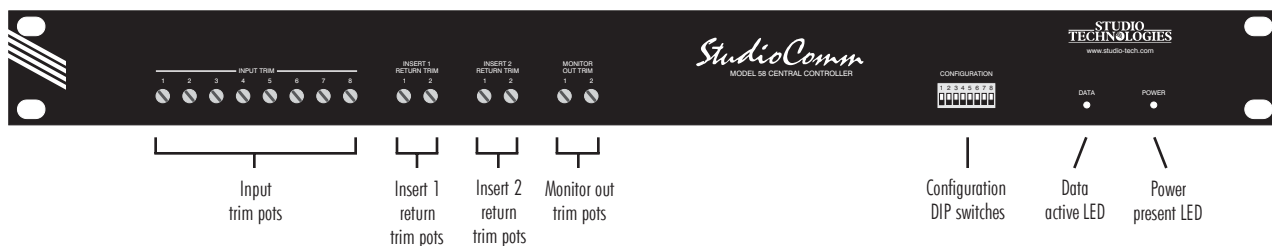
Model 59

Model 59 Control Console

The Model 59 Control Console is a compact, self-contained unit designed to be located at the operator's position. It allows fingertip control of all monitoring parameters. Numerous LEDs provide complete status information. The Model 59 supports up to eight output channels, and up to four, 8-channel input sources. The actual operating configuration simply depends on the number of Model 58 Central Controller units which are connected.

The Model 59 provides four buttons and associated LEDs for selection of the input source to be monitored. While in most cases only one input source will be monitored at a time, multiple inputs can be selected for simultaneous monitoring. This allows two, three, or all four of the inputs to be combined ("summed"). While there is no independent control of the input levels, this feature can be useful for creating rough mixes from the source signals. It is also a fast, effective means of making a "seat-of-the-pants" check on the phase relationship between synchronized signals.

Model 58 Central Controller Front Panel

Input trim pots   Insert 1 return trim pots   Insert 2 return trim pots   Monitor out trim pots   Configuration DIP switches   Data active LED   Power present LED
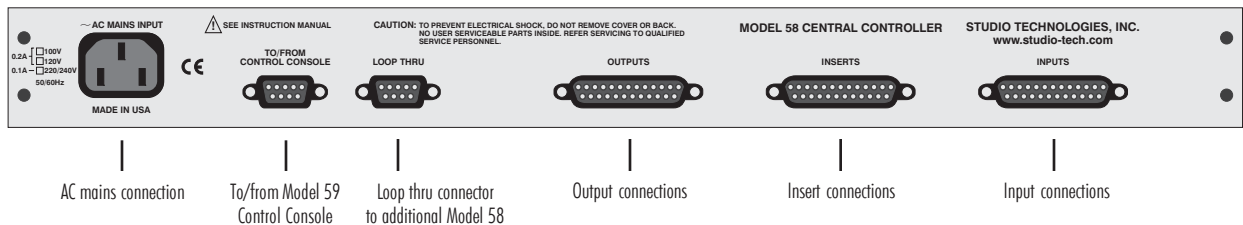
The monitor output level is controlled either through the use of a large, easy-to-use rotary control, or by enabling the preset reference level button. For operator convenience, the dim function allows the monitor output level to be reduced by a fixed dB amount. The mute all function disables all monitor outputs by activating the mute relays on the Model 58 Central Controller units. A push-button switch and two LEDs are used to select the desired monitor output—either A or B.

The StudioComm's two insert sections are directly accessible using push-button switches. While they can perform a standard insert action, they can also be used to provide a wide range of muting, routing, and summing functions. Each insert can be configured, on a channel-by-channel basis, to act in one of four modes: Mute, maintain connection of the direct signal, insert the return signal in place of the direct signal, or sum the return signal with the direct signal.

Individual output channel control is provided by the mute/solo section. One push-button switch sets the operating mode for either mute or solo. In the mute mode, individual channels can be muted or un-muted as required. In the solo mode, one channel can be monitored while the others are automatically muted. (Of course, multiple channels can be simultaneously selected for "soloing.") The flexibility of having both mute and solo available allows an operator to quickly select the most comfortable and productive operating mode.

A major strength of the Model 59 is the ability to configure, under software control, a number of operating parameters. During initial installation the Model 59 is "taught" the number of output channels to be controlled, the number of channels associated with each of the four inputs, and how the two insert sections are to route signal. The monitor output reference level is set by taking an electronic "snapshot" of the position of the rotary level control. The dim level is selected from four available levels. A number of other operating parameters are also configured, including which of the remote-control functions will be enabled. All configuration parameters are stored in non-volatile memory.

Model 58 Central Controller Back Panel

| AC mains connection | To/from Model 59 Control Console | Loop thru connector to additional Model 58 | Output connections | Insert connections | Input connections |

A Model 59 Control Console connects to one of the Model 58 Central Controllers using a standard 9-pin D-subminiature cable. Multiple Model 58 units are connected together in a bus fashion. Power for the Model 59 is provided by the Model 58s. The Model 59 generates MIDI system-exclusive messages to control the Model 58 units. Remote-control signals connect to the Model 59 via pins in the 9-pin interconnecting cable.

Remote Control

Remote Control Capability

Three remote-control functions can be easily implemented: Mute all or dim, insert 1 or 2 enable, and monitor level. Contact input 1 can be configured as either a remote mute all or a remote dim function. This supports external functions such as talkback or slate. Contact input 2 can be used to remotely enable insert 1 or 2, allowing a PFL/solo function on an audio console to be interfaced with the StudioComm system. The remote level control input allows connection of a standard linear-taper potentiometer; no special optical encoder or buffer circuitry is required. The remote-control functions allow creation of a secondary monitoring location. An example would be a producer or director's desk or seating location where level control or muting may be desired. Provisions have been made in the Studio-Comm's operating software to ensure that critical listening is not affected by remote activity.

Expanded Capability

Expanded Input Capability

In the standard operating mode the Model 59 Control Console is designed to support up to four Model 58 Central Controller units. This provides eight output channels, and allows connection of up to four 8-channel sources. A special mode can be enabled that allows a slightly modified Model 59 to support up to eight Model 58 units. This mode again provides eight output channels, but now will support connection of up to eight 8-channel sources. Specialized playback applications, such as large screening rooms at motion picture studios, can benefit from this expanded operating mode. Contact the factory for details.

Limitations

Limitations on Signal Routing

While the StudioComm system for multi-channel monitoring will do many wonderful things, it is not designed to selectively route input signals to the different output channels. The input-channel-to-output-channel relationship is maintained. A signal that arrives on input 2, channel 6 will, when selected, output only on monitor and meter output channel 6. Any rerouting of the input signals will have to be done prior to their connection to the StudioComm system. This should not be an impairment in most facilities, but it's important to highlight this fact.

Specifications

Model 58 Central Controller

General Audio:
Frequency Response: 20Hz-20kHz ±0.1dB (down 1dB @ 85kHz), monitor out
Distortion (THD+N): 0.01%, measured at 1kHz, +4dBu, monitor out
S/N Ratio: 89dB, ref +4dBu out
Crosstalk: 78dB, ref +4dBu in

Audio Inputs: 8, organized as four 2-channel pairs
Type: electronically balanced
Impedance: 24k ohms
Nominal Level: +4dBu, adjustable ±2dB

Inserts: 2, 2-channel
Send Type: electronically balanced
Send Nominal Level: +4dBu
Send Maximum Level: +27dBu into 10k ohms, +26dBu into 600 ohms
Return Type: electronically balanced
Return Impedance: 24k ohms
Return Nominal Level: +4dBu, adjustable ±2dB

Monitor Outputs: 2, 2-channel
Type: electronically balanced
A/B Switching: sealed, electromechanical relays, output circuitry shared by both outputs
Nominal Level: unity gain, adjustable ±2dB
Maximum Output Level: +27dBu into 10k ohms, +26dBu into 600 ohms

Meter Output: 1, 2-channel
Type: unbalanced
Nominal Level: +4dBu
Maximum Level: +21dBu into 10k ohms, +20dBu into 600 ohms

Connectors:
Audio: 3, 25-pin D-subminiature female
Control: 2, 9-pin D-subminiature female
AC Mains: 3-blade IEC-type

AC Mains Requirement:
100, 120, or 220/240V, ±10%, factory configured, 50/60Hz

Dimensions (Overall):
19.00 inches wide (48.3cm)
1.72 inches high (4.4cm)
8.75 inches deep (22.2cm)
(1 standard rack space)
Weight: 8.0 pounds (3.6kg)

Model 59 Control Console

Application: supports up to four Model 58 Central Controllers. (Special mode supports up to eight Model 58s.)

Power: provided by Model 58 units

Output Data: generates MIDI system-exclusive messages

Remote Control Inputs: 2 contact, 1 potentiometer

Connector: 1, 9-pin D-subminiature female

Dimensions (Overall):
7.2 inches wide (18.3cm)
2.2 inches high (5.6cm)
5.4 inches deep (13.7cm)
Weight: 2.0 pounds (0.9kg)

Specifications subject to change without notice.

For further information on the StudioComm series please contact:

Studio Technologies, Inc.
5520 West Touhy Ave., Skokie, Illinois 60077 USA
Telephone (847) 676-9177, Fax (847) 982-0747
www.studio-tech.com