



# Model 200

## Announcer's Console

The Model 200 Announcer's Console is specifically designed for television sports broadcasting applications, serving as the audio control center for on-air talent. The unit integrates on-air, talkback, and cue audio signal routing and control into one compact package. Highlights of the Model 200 include ease of installation and use, reliability, and sonic excellence. Whether used for professional, amateur, or entertainment-only broadcast events, "pro" quality performance is always maintained.

The Model 200 is optimized to directly interface into the broadcast environments typically used for events such as football, baseball, basketball, and motor sports. Standard connectors are used for the microphone, headphone, talkback, and IFB signals. This allows setup to be fast and consistent. A limited number of configuration options are provided. Once selected, no event-to-event configuration changes should be required. For ease of use, the on-air talent is presented with a simple set of controls and indicators. Whether it's mic preamplifier, audio switching, talkback output, or headphone cue feed, excellent audio performance is maintained throughout.



**Model 200 front panel shown with buttons labeled for on-air applications**

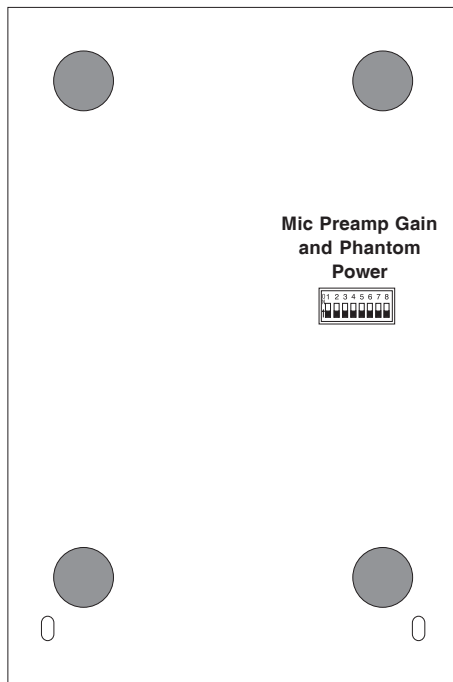
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### Microphone Input and Configuration

A high-performance microphone preamplifier circuit provides low-noise/low-distortion amplification over a 20 to 60dB gain range. The gain is adjustable in 10dB steps. The input is compatible with balanced dynamic or condenser microphones. The microphone power source is 48 volts nominal and meets the worldwide P48 phantom standard. The output of the microphone preamplifier is used by the main and talkback output circuits.

One 8-position DIP-type switch array is used to set the gain of the microphone preamplifier and the on/off status of the phantom power. These switches are accessible via the bottom of the Model 200's enclosure; the unit does not have to be disassembled. To prevent access to the configuration switches a security panel, included with each unit, is attached to the bottom of the enclosure.



Model 200 bottom view showing configuration switches

### Main and Talkback Outputs

The Model 200 provides one main and one talkback output. The main output is intended to serve as the on-air audio feed. It is designed as a fully professional interface with high output capability, low distortion, and low noise. It features an

output transformer that is well suited for driving long broadcast cable runs. The talkback output is intended to provide production trucks, control rooms, or support personnel with a talent-originated cue signal. The talkback output is transformer-coupled with a +4dBu nominal signal level. It contains resistors in series with its output connections, allowing the talkback output from multiple Model 200 units to be directly "summed."

### User Controls and Status Indicators

Two pushbutton switches, three LED indicators, and two rotary controls provide the user with a clear, easy-to-use interface. One of the pushbutton switches controls the status of the main output. This is the audio output intended for on-air use. The main output button performs a "push-to-mute" function that momentarily mutes the main output. This "cough" function is typically required for on-air applications. Two LEDs display the on/off status of the main output.

A second pushbutton switch controls the talkback output. This is the audio output used to communicate with producers, directors, or other behind-the-scenes production personnel. The talkback button provides a "push-to-talk" function. When active, the talkback function routes the microphone signal to the talkback output while muting the main output. A status LED is associated with the talkback button. Two rotary controls allow the user to adjust the level of the headphone output.

### IFB Input

A broadcast-standard "wet" (DC with audio) IFB circuit can be directly connected to the Model 200's IFB input. Originated by sources such as the RTS™ 4000-series IFB system or IFB interface devices from Studio Technologies, the connected IFB circuit can provide DC power to operate the Model 200 as well as two channels of cue audio.

### Cue Sources and Headphone Output

The two audio sources associated with the IFB input are routed, by way of interface, level controls, and output circuitry, to the headphone output. Originating in production trailers, control rooms, or remote locations, these cue sources typically provide program-with-interrupt audio on one channel and program-only audio on the other. The Model 200 doesn't perform any cue source channel rerouting, summing, or muting. Channel 1 (pin 2 of the IFB connector) serves as the headphone output's left channel source. Channel 2 (pin 3 of the IFB connector) serves as the source for the headphone's right channel output.

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- Product Highlights:**
- Excellent Audio Quality
  - Fast, Reliable Setup
  - Simple User Interface
  - Standard Connectors

Some applications may benefit by being able to connect standard line-level audio signals to the Model 200. To meet this need one or two optional line input cards can be installed in the unit's back panel. Each card provides a 3-pin female XLR-type connector and transformer-isolated +4dBu nominal input circuit. One card is assigned to the left headphone output, the other to the right.

Two rotary controls are provided for user adjustment of the headphone output levels. They provide independent volume-control adjustment of the left and right channels. To help minimize the chance of broadcast cues being missed, both level controls are configured so that a minimum headphone output level is maintained.

The headphone output was designed to meet the needs of contemporary headphones and headsets. Specifically, the output circuits act as voltage, rather than power, drivers. This implementation provides high output levels with very low distortion and noise, along with minimal current consumption. The output circuits can safely drive stereo or mono loads, ensuring that all types of headphones, headsets, and earpieces can be directly connected.

### Audio Quality and Protection

The Model 200's circuitry has been carefully designed to provide excellent audio performance. Pro-audio-quality components are featured throughout. For reliability all audio switching is performed using solid-state devices. In the critical main output and talkback output audio paths, "clickless" electronic switches provide noise-free control. All audio inputs and outputs make extensive use of protection components. This limits the chance of damage from ESD and other undesirable, yet real-world, hazards.

### Power Sources

The Model 200 can derive its operating power from either the IFB input or an external 24 volt DC source. For redundancy, both power sources can be connected simultaneously. An

internal switch-mode power supply ensures that all Model 200 features are available, including phantom power, when powered by either source.

The Model 200 is compatible with IFB circuits provided by most standard broadcast systems. However, maximum performance can often be obtained by using the IFB interface devices available from Studio Technologies. Single-channel and four-channel units are available, each providing high-quality audio along with an excellent source of DC power. They're directly compatible with most matrix intercom systems, as well as standard line-level audio signals. Refer to the Studio Technologies website for details.

### Connectors

The Model 200 uses standard connectors throughout. The microphone and IFB inputs use 3-pin female XLR-type connectors. The main and talkback outputs use 3-pin male XLRs. The headphone output utilizes a 1/4-inch 3-conductor jack. The external source of 24 volt DC power is connected by way of a 2.1 x 5.0mm "locking" coaxial power jack.

In the world of broadcast audio it's fair to say that applications vary widely. To this end, one or two additional XLR-type connectors can be easily mounted into the Model 200's back panel. Seven 3-position "headers" are located on the Model 200's circuit board and provide technician-access to all input and output connections. Using a factory-available interface cable kit, these allow a Model 200 to be optimized to meet the exact needs of specific applications. For example, some applications may prefer to use a multi-pin XLR-type connector to interface with a headset. This could be easily accomplished by adding the appropriate 5-, 6-, or 7-pin XLR-type connector and making a few simple connections. Other applications may benefit from having "mult" or "loop-through" connections, something easily incorporated into a Model 200. One or two optional line-input cards, as previously discussed, can also be mounted in the spare XLR positions.



Model 200 back panel

## 200-Series Announcer Console Products

The Model 200 is just one in a series of announcer console products available from Studio Technologies. The Model 200 was designed specifically for on-air television sports applications where the performance requirements were well defined. The unit's features and operating modes were selected to

provide excellent performance and rapid setup, along with limited configuration flexibility. For applications that require additional performance enhancements the other products in the 200-series should be reviewed. Complete information is available on the Studio Technologies website.

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## Model 200 Specifications

### General Audio:

**Frequency Response:** 20Hz-20kHz,  $\pm 0.3$ dB, mic in/main out, 40dB gain  
**Distortion (THD+N):** 0.008%, measured at 1kHz, mic in/main out, 40dB gain  
**S/N Ratio:** 80dB, referenced to -40dBu mic in/0dBu main out

### Connectors:

**Mic In, IFB In:** 3-pin female XLR-type  
**Main Out, Talkback Out:** 3-pin male XLR-type  
**Headphone Out:** ¼-inch 3-conductor phone jack  
**24Vdc Power In:** coaxial power jack, 2.1 x 5.0mm, locking bushing, compatible with Switchcraft S760K plug

### Spare Connector Locations: 2

Allows one or two Neutrik NC\*D-L-1 connectors to be installed (\*=3F, 3M, 5F, 5M, 6F, 6FS, etc.)

### Microphone Input/Preamplifier:

**Type:** electronically balanced  
**Input Impedance:** 2k ohms, nominal  
**Gain Range:** 20 to 60dB, nominal, adjustable in 10dB steps  
**Compatibility:** dynamic or phantom-powered microphones  
**Phantom Power:** 48Vdc, nominal, meets IEC 61938

### IFB Input:

**Type:** 2-channel, unbalanced (pin 1 common; pin 2 DC with channel 1 audio; pin 3 channel 2 audio).  
**Impedance:** 10k ohms, nominal  
**Nominal Level:** -10dBu

### Main Output:

**Type:** balanced, transformer-coupled  
**Impedance:** 100 ohms, nominal  
**Nominal Level:** -2dBu  
**Maximum Level:** +19dBu into 2k ohms

### Talkback Output:

**Type:** transformer-coupled with series capacitors and isolation resistors  
**Impedance:** 600 ohms, nominal  
**Nominal Level:** +4dBu  
**Maximum Level:** +20dBu into 2k ohms

### Headphone Output:

**Compatibility:** intended for connection to mono or stereo headphones or headsets with nominal impedance of 100 ohms or greater  
**Type:** voltage driver  
**Maximum Output Voltage:** 8Vpp, 150 ohm load

### Power Sources:

**IFB:** 24-32Vdc, 95mA  
**External:** 24Vdc nominal, 50mA @ 24Vdc; acceptable range 20-30Vdc. Units shipped to North America and Japan include a 120V input/24Vdc output power supply. Units shipped to all other locations include a universal input/24Vdc output power supply.

### Options:

One or two line input cards can be installed to provide support for connection of line-level balanced or unbalanced audio sources

### Dimensions (Overall):

5.6 inches wide (14.2cm)  
3.3 inches high (8.4cm)  
8.5 inches deep (22.4cm)

**Weight:** 3.4 pounds (1.6kg)

Features and specifications subject to change without notice.

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