



# Technical Data Sheet

## MS2002 Master Station

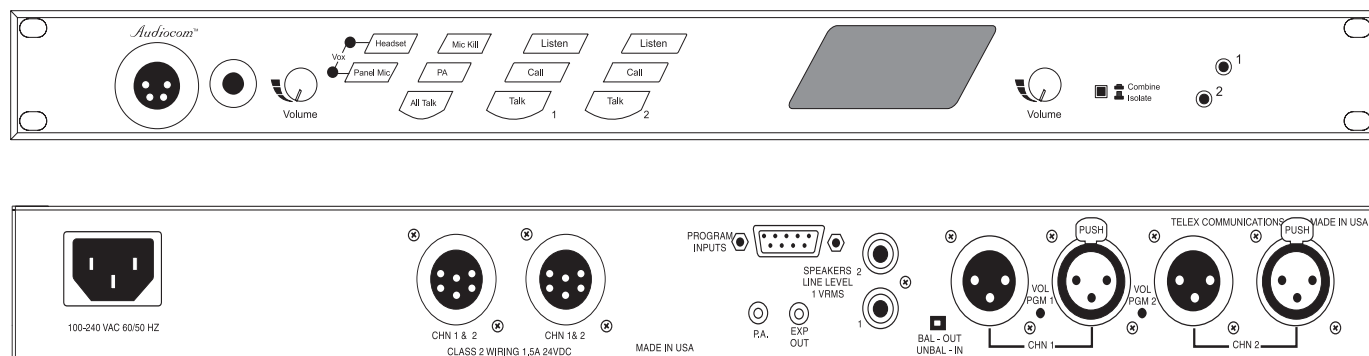


The MS2002 is a complete 2-channel master station and system power supply in a single unit. You simply plug it into any AC power outlet from 100 to 240 volts, add a microphone or headset, connect intercom stations to the back panel, and you're ready to communicate. It even has both 1-channel and 2-channel connectors, so you don't have to add a separate breakout box if you want to mix 1-channel and 2-channel intercom stations. The MS2002 fits in a standard 19-inch equipment rack and is 1 rack unit high.

### Features

- Speaker Station or Headset Station. Use the built-in speaker for listening and add an optional Telex MCP-90 series Gooseneck Panel Microphone for talk-back. Or, turn off the speaker volume, and plug in any of a variety of Telex headsets for private communication.
- Voice Activated Microphone (VOX). Separate controls adjust the voice activation level for the headset microphone and panel microphone inputs.
- Public Address (PA) Output, with PA key. Use your intercom microphone to talk over a PA system.
- Back-lit Keys: Improves visibility in low-light.
- Incoming Call Indications: Red flashing call light, with beep tone if desired.
- Mic Kill Key: You can turn off all microphones on a channel to quickly clear the channel.
- Program Input for Each Channel. Connect any line-level audio source for monitoring in the speaker or headset, or for routing to the intercom channel. The program audio to the channel can be set to interrupt while the MS2002 operator is talking on the channel.
- Binaural (Stereo) Listening with External Powered Speakers. You can connect external powered speakers and then monitor channel 1 and 2 as separate right and left audio.
- Expandable. Add more channels by connecting optional EMS4001 Expansion Stations. Each EMS4001 adds four additional powered channels (up to eighteen channels).
- Clear-Com\* Compatible.

*\* Brand names mentioned are the property of their respective companies.*



# Specifications

## General

### Power Requirements:

AC Input: 100-240 VAC, 50/60 Hz

Channel Power: 24 VDC nominal

Dimensions: 1.75" (44.5 mm) high x 19" (483 mm) wide x 10.31" (261.9 mm) deep

Weight: approximately 4.5lb (2 kg)

### Environmental Requirements:

Storage: -20°C to 80°C; 0% to 95% humidity, non-condensing

Operating: -15°C to 60°C; 0% to 95% humidity, non-condensing

## Dynamic-mic Headset

Microphone: 50 to 200 ohm, dynamic (balanced or unbalanced)

Headphones: 150 to 600 ohm, monaural

Connector Type: XLR-4M connector

## Panel Microphone Input

Microphone Type: Electret condenser

Power: Phantom (+5 VDC)

Nominal Level: -42 dBu

Maximum Level: -25 dBu

Connector Type: MCP-90, 1/4 " stereo plug with threaded shaft

## Program Input

Input Level: 100mV maximum

Voltage Gain: 25  $\pm$ 3 dB

Output Level (to intercom channel) :1.0 Vrms nominal, 2.3 Vrms max.

Input Impedance: 75 kohm

Common Mode Rejection: Greater than 50 dB

Connector Type: 9-pin female D-sub (DE9S)

Pin 1: Ground

Pin 2: Program 1 input low

Pin 3: Program 2 input low

Pin 4: NC

Pin 5: NC

Pin 6: Program 1 input high

Pin 7: Program 2 input high

Pin 8: NC

Pin 9: NC

## Intercom Channels, Balanced Mode (Back panel switch set to BAL)

Output Level: 1 Vrms nominal

Input Impedance: 300 ohms

Bridging Impedance: greater than 10,000 ohms

Sidetone: -40 dB, 35 dB adjustable range

### Call Signaling:

Send: 20 kHz  $\pm$ 100 Hz, 0.5 Vrms  $\pm$ 10%

Receive: 20 kHz  $\pm$ 800 Hz, 100 mVrms

### Mic-Kill Frequency:

Send: 24 kHz  $\pm$ 300 Hz, 0.5 Vrms  $\pm$ 10%

Detect: 24 kHz  $\pm$ 800 Hz, 100 mVrms

Noise Contribution: less than -70 dB

Common Mode Rejection Ratio: greater than 50 dB

Connector Type: One XLR-3M and XLR-3F pair, wired in parallel, for each channel (permits "loop-thru" connection). Two XLR-6M (Neutrik) connectors for 2-channel connection.

XLR-3 Balanced Configuration Pinout

Pin 1: Common

Pin 2: Intercom audio low and +24 VDC input

Pin 3: Intercom audio high and +24 VDC input

### XLR-6 Balanced Configuration Pinout

Pin 1: Audio and DC Common

Pin 2: Local power (12 to 15 VDC, 65 to 150 mA)

Pin 3: Intercom channel 1 audio low and +24 VDC phantom power

Pin 4: Intercom channel 1 audio high and +24 VDC phantom power

Pin 5: Intercom channel 2 audio low and +24 VDC phantom power

Pin 6: Intercom channel 2 audio high and +24 VDC phantom power

## Intercom Channel, Unbalanced Mode (UNBAL position)

Output Level: .750 Vrms  $\pm$ 10%

Input Impedance: 200 ohms

Bridging Impedance: greater than 10,000 ohms

### Call Signaling:

Send: 11  $\pm$ 3 VDC

Receive: 4 VDC minimum

Connector Type: Uses same connectors as for balanced mode, above, but with pinout modified by BAL/UNBAL switch on back panel as follows:

### XLR-3 Unbalanced Configuration Pinout

Pin 1: Common

Pin 2: +30 VDC input

Pin 3: Intercom audio high

### XLR-6 Unbalanced Configuration Pinout

Pin 1: Common

Pin 2: Local power (15 VDC, 65 to 150 mA)

Pin 3: Channel 1 +30 VDC input

Pin 4: Channel 1 Intercom audio high and DC call

Pin 5: Channel 2 +30 VDC input

Pin 6: Channel 2 Intercom audio high and DC call

## PA Output

Output Level: 235 mVrms nominal

Connector Type: 1/8-inch Stereo Phone Jack

Tip: PA output high

Ring: Not used

Sleeve: Common

## Speaker Output

Output Level: 0 dB nominal (1.0 Vrms max)

Output Impedance: 1000 ohms nominal

Frequency Response: 200 Hz to 8 kHz  $\pm$ 1/-3dB

Connector Type: RCA Phono Jack

Tip: Speaker output high

Sleeve: Common

## Expansion Input /Output

Type: 2.0 mm stereo phone jack

Tip: Talk output

Ring: Listen input

Sleeve: Common

## Headphone Amplifier

Voltage Gain: 30  $\pm$ 3 dB

Maximum Output: 250 mW  $\pm$ 10% into 150 ohms, 65 mW  $\pm$ 10% into 600 ohms

Frequency Response: 200 Hz to 8 kHz  $\pm$ 1/-3dB

Incoming Call Beep Tone: 2 kHz, at the headphones

Total Harmonic Distortion: Less than 0.2% at 200 mW

Sidetone: 18  $\pm$ 2 dB, adjustable

## Panel Microphone Amplifier

Voltage Gains:

Mic to CHN; 25 $\pm$ 3 dB, before limiting

Mic to Headphone; adjustable, 45 dB  $\pm$ 10% maximum, into 150 ohms

Mic to PA; 15  $\pm$ 3 dB, 235 mVrms  $\pm$ 10%

Frequency Response: 200 Hz to 8 kHz  $\pm$ 1/-3dB

Total Harmonic Distortion: Less than 0.2% at CHN output

VOX Range: -75 to -30 dB, -60 dB factory set

For Sales/Technical Support and System Design

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## Ordering Information

MS-2002	2 channel user/main station with 2.0 amp power supply	Catalog No. 90007749000
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