

## MS-2002

### Master Station and Power Supply

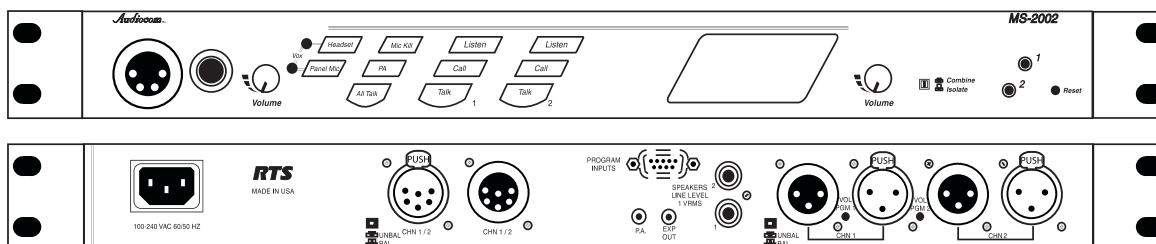


The MS-2002 is a complete 2-channel master station and system power supply (24 V DC, 2 Amps total power) in a single unit. You simply plug it into any AC power outlet from 100 to 240 volts, add a microphone or headset, connect intercom stations to the back panel, and you're ready to communicate. It has combined 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 MS-2002 fits in a standard 19-inch equipment rack and is one (1) rack unit high. The basic MS-2002 can communicate with two (2) intercom channels. This number can be increased by connecting optional EMS-4001 Expansion Stations. Each EMS-4001 adds four (4) additional channels, and up to four (4) of these expansion stations can be connected for a total of eighteen channels.

## Features

- Speaker Station or Headset Station – Use the built-in speaker for listening and add an optional RTS MCP-90 series Gooseneck Panel Microphone for talkback. You can also turn off the speaker volume, and plug in 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.
- Instantaneous Auto-Reset – The newest technology in performance and safety, which uses a revolutionary new circuitry that dynamically monitors line fault conditions. Then, when the fault is removed, automatically brings individual power supply channels up.
- 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 MS-2002 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 EMS-4001 Expansion Stations. Each EMS-4001 adds four additional powered channels (up to eighteen channels).
- Clear-Com Compatible

## Line Drawings



# Specifications

## General

### Power Requirements:

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

Channel Power: ..... 24 VDC nominal (12 to 30 VDC), 65 to 150 mA

MS-2002 is capable of supplying 1 amp per channel overall

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

Weight: ..... approximately 4.5 lb (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  $\Omega$ , dynamic (balanced or unbalanced)

Headphones: ..... 150 to 600  $\Omega$ , monaural

Connector Type: ..... XLR-4M

Pin 1 ..... Microphone low

Pin 2 ..... Microphone high

Pin 3 ..... Headphone high

Pin 4 ..... Headphone low

### Panel Microphone Input

Microphone Type: ..... Electret condenser

Power: ..... Phantom (+5 VDC)

Nominal Level: ..... -42 dBu

Maximum Level: ..... -25 dBu

Connector Type: ..... IKP12 (MCP-90 series, stereo plug connector)

### Program Input

Input Level: ..... 2.3Vrms maximum, 1.0Vrms nominal

Voltage Gain: ..... 25  $\pm$ 3 dB

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

Input Impedance: ..... 75 k

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 (Both Back Panel and internal switches (BAL/UNBAL) must be set to same setting)

Output Level: ..... 1 Vrms nominal

Input Impedance: ..... 300  $\Omega$

Bridging Impedance: ..... greater than 10,000  $\Omega$

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 Pinouts

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 Pinouts

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 (Both Back Panel and internal switches (BAL/UNBAL) have to be set to same setting)

Output Level: ..... 1 Vrms  $\pm$ 10%

Input Impedance: ..... 150  $\Omega$

Bridging Impedance: ..... greater than 10,000  $\Omega$

Call Signaling:

Send: ..... 11  $\pm$ 3 VDC

Receive: ..... 4 VDC minimum

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

### XLR-3 Unbalanced Configuration Pinouts

Pin 1: ..... Common

Pin 2: ..... +24 VDC input

Pin 3: ..... Intercom audio high

### XLR-6 Unbalanced Configuration Pinouts

Pin 1: ..... Common

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

Pin 3: ..... Channel 1 +24 VDC input

Pin 4: ..... Channel 1 Intercom audio high and DC call

Pin 5: ..... Channel 2 +24 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)

Output Impedance: ..... 1000  $\Omega$  nominal

Frequency Response: ..... 200 Hz to 8 kHz +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  $\Omega$ , 65 mW  $\pm$ 10% into 600  $\Omega$

Frequency Response: ..... 200 Hz to 8 kHz +1/-3dB

Incoming Call Beep Tone: ..... 2 kHz, at the headphones

Total Harmonic Distortion: ..... Less than 0.2% at 200 mW

# Order Information

- MS-2002 • 2 channel user/main station with 2.0 amp power supply

For ordering information, contact your regional sales representative at:

<http://rtsintercoms.com/us/intercom/contact>

The specification information is preliminary and is subject to change without notification.

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