MS-704

RM-704

SB-704

The **704** series is Clear-Com's most advanced party-line intercom system. Each station is a four-channel intercom with superior audio and versatile channel access to provide unmatched communication flexibility. All front-panel controls are intuitive and easy to operate. The station's front-panel buttons are programmable and can be customized for a wide variety of applications that will meet the demands of any stage, studio, or field producer. Separate volume controls for every channel ensure the perfect audio mix in the headset or on the integral speaker.

The SB-704 includes a versatile switching matrix which allows up to ten different groups of stations to be assigned to any one of the four channels. The regulated power supply in the MS-704 and SB-704 provides power for the entire intercom system.

SB-704 Main Station

This station is similar to the MS-704 main station except the speaker is replaced by a 10 x 4 assignment matrix panel. The assignment matrix panel allows you to choose any intercom station or group of stations connected to the ten inputs of the matrix and assign them to any one of the four intercom channels.
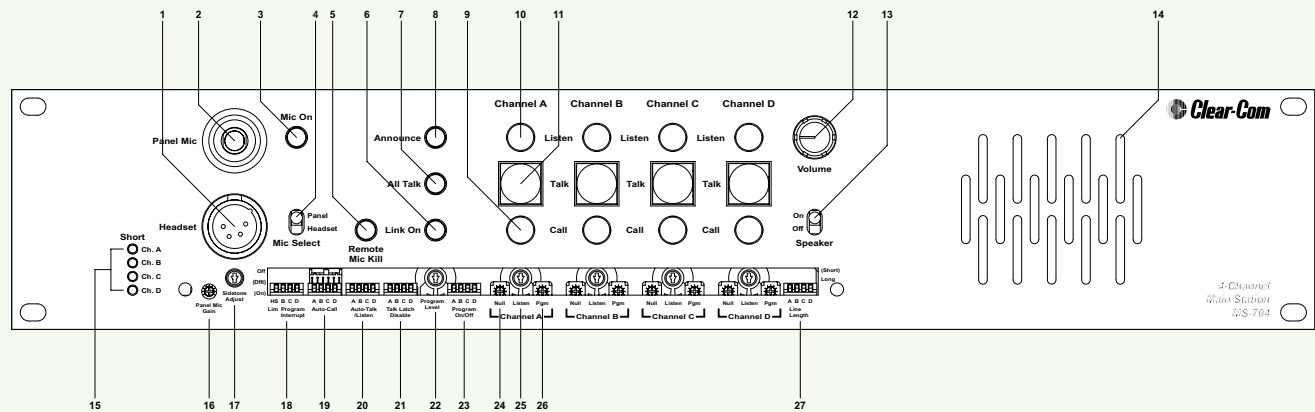
RM-704 Remote Station

The RM-704 remote station is powered directly from the intercom line and requires no external AC power, allowing it to be placed anywhere regardless of available electrical mains. The RM-704 has all of the same functions as the MS-704, except that it has no power supply, circuit breaker, or linking function.

Features:

- Four Independent Intercom Channels for ultimate flexibility
- Microprocessor-Controlled Logic assures maximum communications power
- Universal Voltage Power Supply for 100 - 240 VAC operation, with short-circuit protection on each channel
- Linking Control instantly links channels together in "super party line"
- Separate Talk and Listen Buttons for each channel
- Individual Listen Volume Controls for each channel
- "All-Talk" Function permits instant communications to all four channels
- Four Separate Program Inputs are electronically balanced
- Three Interruptible IFB Channels make talent cueing easy
- "Announce" Button with Relay for external paging
- Visual "Call Signaling" alerts users when others want to speak to them
- Wide-Range High-Output Speaker for optimum clarity in all acoustic environments
- "Hot-Mic" Output allows easy connection to external IFBs
- Adjustable Mic Proximity Compensation reduces acoustic feedback
- Superior "Contoured" Audio insures excellent voice intelligibility under all noise conditions, including high-noise environments
- LED buttons for talk, call, announce, link, all talk, and mic on
- Remote Mic Kill switch turns off the microphone talk circuits

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MS-704 Front Panel Features

1. Headset Connector
XLR 4-pin male

2. Panel Mic Connector
Allows easy attachment of proprietary 9" or 18" gooseneck microphone

3. Mic on Switch/Indicator
Blue-color LED; button illuminates when the microphone is active.

4. Mic Select Switch
Selects between the panel mounted gooseneck mic and the headset mic.

5. Remote Mic Kill
Amber-color LED turns off the microphone talk circuits of all Clear-Com beltpacks in the system (*MS-704 & SB-704*).

6. Link Button
Amber-color LED; links channels B, C, and/or D to Channel A.

7. All Talk Buton
Amber-color LED ; sends the station's mic signal to all four channels.

8. Announce Button
Amber-color LED; directs station's mic signal to dedicated rear-panel "announce" output while activating associated relay

9. Call Button
Red-color LED; Activates all station and beltpack call lights on the respective intercom channel; also functions as attention-getting "Call" lights.

10. Listen Button
Green-color LED; Turns on LISTEN circuit on corresponding channel.

11. Talk Button
Blue-color LED (on), amber-color LED (off); illuminated dual-action buttons light up to indicate the on-off status of each channel's TALK circuit.

12. Volume Control
Adjusts the listening level for both speaker and headset.

13. Speaker On/Off Switch
Selects or deselects the built-in speaker.

14. Loudspeaker
High-quality loudspeaker is driven by a four-watt proaudio amplifier.

15. Short Indicators
Illuminates when a short is detected on one or more of the lines while power will be supplied to other channels.

16. Panel Mic Gain
Adjusts the sensitivity of the gooseneck panel mic.

17. Sidetone Adjust
Controls the level of your voice as it is heard in your own headset and speaker.

18. Program Interrupt Select (IFB)
Selects which channel the program interrupt will operate.

19. Auto Call Select
Sends a call signal automatically when the TALK button is depressed.

20. Auto Talk/Listen Select
Allows the TALK and LISTEN circuit to be automatically activated when the TALK button is depressed.

21. Latch Disable Select
TALK button is momentary function only.

22. Program Level
Adjusts the level of the Audio Program feed to the station speaker.

23. Program Select
Determines which intercom channels the audio program feed will be sent to.

24. Null Control
Used in conjunction with line/link switch to minimize intercom channel crosstalk in station.

25. Listen Level Control
Adjusts the listen level for each intercom channel.

26. Program Adjust
Controls the level of program audio sent out to each individual channel.

27. Line Length Select Dip Switch
Compensates for electrical capacitance on each individual intercom channel to optimize null adjust.

Matrix Assignment Switch (SB-704 only - not shown)
Assigns an intercom station to any one of the four channels or to an off or party-line position.
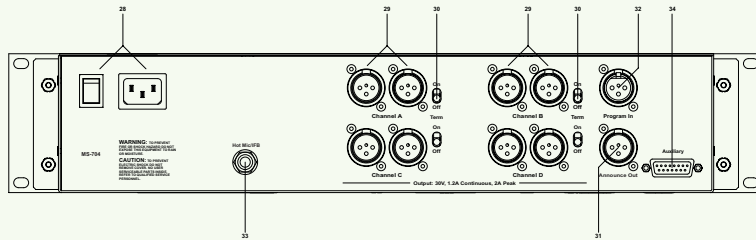

Superior "Contoured" Audio
Compatible with all Clear-Com party-line intercoms, the 704 series accepts a wide range of dynamic headsets, with a choice of headset connectors. Optional plug-in noise-cancelling gooseneck microphones are available in 9" and 18" lengths.

Remote Mic Kill (RMK)
The MS-704 is equipped with a global RMK button. It will turn off the microphone talk circuits of all Clear-Com beltpacks in the system, eliminating extraneous noise from the "open" headset microphones.

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MS-704 Rear Panel Features

28. Power Connector And Switch
EIA power connector for 100 -240 VAC operation.

29. Intercom Connectors (See specifications)

30. Channel Termination Switches
Provides individual termination for each intercom channel.

31. Announce Output (XLR-M 3-PIN)
Line-level transformer-isolated audio output.

32. Program Input #1 (XLR-F 3-PIN)
Electronically balanced line-level audio input that is sent to the station or selectively to the intercom channels.

33. Hot MIC/IFB Output
Provides line-level audio output from mic at all times while on and provides feed to external IFB system.

34. Aux Connector (DB-25F)
Provides 4 separate Program Inputs, announce Relay contacts, and a footswitch input.

Redundant "Failsafe" Power Supply
The 1.2-amp universal switching power supply is a 30-volt regulated supply with multiple short-circuit protection. It can sense the difference between a long-term short circuit and an instantaneous overload, allowing the intercom to continue to operate even when a station is plugged in, momentarily exceeding the capacity of the power supply. If a shutdown occurs from a shorted intercom cable, the power supply will recover under full load when the short is removed.

"Easy Access" Sub Panel
A removable front panel gives the operator easy access to the station's configuration switches and trim pots. Clearly labeled and simple to adjust, these controls allow the station to be instantly configured for virtually any communications application. When configuration is complete, the front panel re-attaches, revealing only those controls useful for normal operation.

Multiple Program Audio Sources
The station accepts five separate program audio sources: four line-level balanced inputs and one assignable line level input. The assignable program input accepts a balanced signal and is designed for monitoring external audio in the headset or speaker. The four balanced program inputs can be used to create individual program feeds on the intercom channels. Three of these channels can be used for program interrupt.

Technical Specifications:

dBu is an absolute measurement. 0 dBu is referenced to 0.775 volts RMS

Panel Microphone Input
Input Type:	Electret
Input Impedance:	>=2KΩ
Mic Limiter Threshold:	0dBu ±3dB
Mic Limiter Range	
(MS-704 & RM-704):	>= 20dB
Mic Limiter Range (SB-704):	>= 15dB

Headset Microphone Input
Input Type:	Dynamic
Input Impedance:	>= 1KΩ
Mic Limiter Threshold:	0dBu ±3dB
Mic Limiter Range	
(MS-704 & RM-704):	>= 17dB
Mic Limiter Range (SB-704):	>= 15dB

Program Line Input
Maximum Level before	
Clipping:	>= 20dBu
Input Impedance:	>= 5KΩ

Headset Output
Load Impedance:	>= 8Ω
Output Impedance:	<= 25Ω
Output Limiter Threshold:	+5dBu ± 3dB
Maximum Output Level before	
Distortion:	>= 17dBu

Speaker Output
Load Impedance:	>= 4Ω
Max Output Level before	
1% Distortion:	20dBu ± 2dBu

Party Line Output
Off Noise:	< -74dBu
Output Impedance:	>10KΩ

Party Line Input
Crosstalk:	< -60dB
Max level before Clipping:	>= 12dBu
Sidetone Null Capability:	> 25dB

Stage Announce/Balanced Line Out
Type:	Balanced
Output Impedance:	>= 200Ω
Load Impedance:	>= 600Ω

IFB/Hot Mic
Type:	Unbalanced
Output Impedance:	150Ω
Load Impedance:	>= 600Ω

Frequency Response
Panel Mic - Party Line:	600 - 10KHz ± 3dB
Headset Mic - Party Line:	200 - 12KHz ± 3dB
Headset Mic - Line Out:	200 - 12KHz ± 3dB
Program Input - Party Line:	100 - 17KHz ± 3dB
Program Input - Headset Out:	200 - 10KHz ± 3dB
Program Input - Speaker Out:	300 - 10KHz ± 3dB
Party Line - Headset Out:	200 - 10KHz ± 3dB
Party Line - Speaker Out:	300 - 10KHz ± 3dB

Max Distortion
Panel Mic - Party Line:	<= 0.5%
Headset Mic - Party Line:	<= 0.5%
Headset Mic - Line Out:	<= 0.5%
Program Input - Party Line:	<= 0.2%
Program Input - Headset Out:	<= 0.2%
Program Input - Speaker Out:	<= 0.5%
Party Line - Headset Out:	<= 0.2%
Party Line - Speaker Out:	<= 0.5%

Noise
Panel Mic - Party Line:	< -65dBu
Headset Mic - Party Line:	< -70dBu
Headset Mic - Line Out:	< -55dBu
Program Input - Party Line:	< -85dBu
Program Input - Headset Out:	< -60dBu
Program Input - Speaker Out:	< -60dBu
Party Line - Headset Out:	< -50dBu
Party Line - Speaker Out:	< -50dBu

Max Gain
Panel Mic - Party Line:	>= 37dB
Headset Mic - Party Line:	41dB ± 2dB
Headset Mic - Hot Mic Out:	55dB ± 3dB
Headset Mic - Announce Out:	55dB ± 3dB
Program Input - Party Line:	>= -16dB
Program Input - Headset Out:	>= 18dB
Program Input - Speaker Out:	>= 24dB
Party Line - Headset Out:	>= 34dB
Party Line - Speaker Out:	>= 40dB

Min Gain
Panel Mic - Party Line:	<= 25dB

Mains Power (MS-704 & SB-704)
Input Voltage Range:	100 - 240 VAC
Input Frequency Range:	50 - 60 Hz
Input Power:	<= 60 VAC
Output Voltage:	30 VDC ± 0.5V
Output Current per Channel (Continuous):	1.2 A
Output Current per Channel (Peak):	2 A (Do not exceed the 1.2A rating for more than 2 seconds per 1 minute period)
Short Circuit Recovery Time (1st short):	<= 0.5 sec
Short Circuit Recovery Time >= 20 shorts in 20sec):	<= 20 sec

Station Capacity (MS-704 & SB-704)
Up to 40 RS-601 beltpacks or 10 speaker stations or 12 headset stations distributed over all channels

DC Power (RM-704)
Input Voltage Range:	20-30 VDC
Input Current (Idle):	<=165 mA
Input Current (Max):	<=195 mA

Rear Panel Connectors (MS-704)
Intercom:	XLR-3M (2 per channel)
Announce Out:	XLR-3M (audio)
Program:	(1) XLR-3F
Hot Mic / IFB Interface:	(1) 1/4 in. (0.64 cm) phone jack
Accessory:	(1) DB-15F
AC Power:	IEC 320 connector

Rear Panel Connectors (RM-704)
Intercom:	(4) XLR-3M (1 per channel) (4) XLR-3F (1 per channel)

Announce Out:	(1) XLR-3M (audio)
Program:	(1) XLR-3F
Hot Mic / IFB Interface	(1) 1/4 in. (0.64 cm) phone jack
Accessory:	(1) DB-15F

Rear Panel Connectors (SB-704)
Switched Intercom:	(10) XLR-3M (1 per channel)
Intercom:	(4) XLR-3M (1 per channel)
Announce Out	(1) XLR-3M (audio)
Program In:	(1) XLR-3F
Hot Mic / IFB Interface:	(1) 1/4 in. (0.64 cm) phone jack
External Speaker:	(1) 1/4 in. (0.64 cm) phone jack
Accessory:	(1) DB-15F
AC Power:	IEC 320 connector

Rear Panel Controls (MS-704)
(1) Power switch

Rear Panel Controls (SB-704)
(1) Power switch
(4) Intercom On/Off Switches

Front Panel Connectors
Panel Mic:	(1) 1/4 in. (0.64 cm) panel mounting jack
Headset:	(1) XLR-4M

Front Panel Controls & Indicators (MS-704)
(1) Panel / headset mic switch
(1) Mic on button
(1) All talk button
(1) Announce button
(1) Party line link button
(4) Program
ON-OFF-INTERRUPT DIP switches
(1) Program level control
(4) Listen adjust controls
(4) Channel null adjust controls
(4) Channel program feed adjust controls
(4) Talk buttons
(4) Call buttons
(4) Listen buttons
(1) RMK button
(1) Speaker ON-OFF switch
(1) Speaker volume control
(4) Short LEDs
(1) Panel mic gain control
(1) Sidetone adjust control
(1) Headset audio limiter DIP switch
(3) Interrupt enable DIP switches
(4) Auto-call DIP switches
(4) Auto-talk/listen DIP switches
(4) Talk latch disable DIP switches
(4) Line length DIP switches

Front Panel Controls & Indicators (RM-704)
(1) Panel / headset mic switch
(1) Mic on button
(1) All talk button
(1) Announce button
(4) Program
ON-OFF-INTERRUPT DIP switches
(1) Program level control
(4) Listen adjust controls
(4) Channel null adjust controls
(4) Channel program feed adjust controls
(4) Talk buttons

Front Panel Controls & Indicators (SB-704)
(1) Panel / headset mic switch
(1) Mic on button
(1) All talk button
(1) Announce button
(1) Party line link button
(4) Program
ON-OFF-INTERRUPT DIP switches
(1) Program level control
(4) Listen adjust controls
(4) Channel null adjust controls
(4) Channel program feed adjust controls
(4) Talk buttons
(4) Call buttons
(4) Listen buttons
(1) RMK button
(1) Speaker ON-OFF switch
(1) Speaker volume control
(4) Short LEDs
(1) Panel mic gain control
(1) Sidetone adjust control
(1) Headset audio limiter DIP switch
(3) Interrupt enable DIP switches
(4) Auto-call DIP switches
(4) Auto-talk/listen DIP switches
(4) Talk latch disable DIP switches
(4) Line length DIP switches
(10) Channel Assignment Slide switches

Environmental
32 - 122˚F (0 - 50˚C)

Dimensions
19 in. W x 3.5 in. H x 10.5 in. D
(483 mm x 88 mm x 267 mm)

Weight
10.86lbs. (4.94 kg) (MS-704)
10.07lbs. (4.58 kg) (RM-704)
10.93 lbs. (4.97 kg) (SB-704)

Notice About Specifications
While Clear-Com makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.

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