

User Guide

Clear-Com Encore AB-120 Announcer Console User Guide

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Part Number: 399G309 Rev B

Document reference

AB-120 Announcer Console

399G309 Rev B

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1 Important Safety Instructions and Compliance

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as a radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. **WARNING:** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Please familiarize yourself with the safety symbols. When you see these symbols on this product, they warn you of the potential danger of electric shock if the station is used improperly. They also refer you to important operating and maintenance instructions in the manual.



This symbol alerts you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.



This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

Safety Symbols

1.1 Compliance Section

- Applicant Name: Clear-Com LLC
- Applicant Address: 1301 Marina Village Pkwy, Suite 105, Alameda CA 94501, USA
- Manufacturer Name: HM Electronics, Inc.
- Manufacturer Address: 2848 Whiptail Loop, Carlsbad, CA 92010, USA
- Country of Origin: USA
- Brand: CLEAR-COM

Product Regulatory Model Number: AB-120

Caution: All products are compliant with regulatory requirements detailed in this document when installed correctly in Clear-Com product per Clear-Com specifications.

Caution: Product modification not expressly approved by the party responsible for compliance can void the user's authority to operate the equipment

1.1.1 FCC Class A

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1.1.2 Canada ICES-003

Industry Canada ICES-003 Compliance Label: CAN ICES-3 (A)/NMB-3(A) This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

1.1.3 European Union (CE)

Hereby, Clear-Com LLC declares that the product described herein are in compliance with the following regulation:

1.1.4 Directives:

EMC Directive 2014/30/EU

Low Voltage Directive 2014/35/EU

1.1.5 Standards:

EN55022

EN55024

EN55032

2 Operation

2.1 Introduction

Congratulations on choosing this Clear-Com product. Clear-Com was established in 1968 and remains the market leader in providing intercoms for entertainment, educational, broadcast and industrial applications. The ruggedness and high build-quality of Clear-Com products defines the industry standard. In fact, many of our original beltpacks and main stations are still in daily use around the world.

We recommend that you read through this manual completely to better understand the functions of the system. If you encounter a situation or have a question that this manual does not address, contact your dealer or call Clear-Com directly at the factory. Our applications support and service people are standing by to assist you (Refer to the Warranty section for contact information). Thank you for selecting Clear-Com for your communications needs.

2.2 Description

The AB-120 Announcer Console is a compact desktop unit designed specifically for live event broadcasting. It integrates all of the input, output, and controls necessary at the announce position, including intercom, talkback, IFB, and mute.



AB-120 Product

A low noise, low distortion balanced microphone preamplifier delivers broadcast quality sound from the announcer's microphone. The AB-120 can be used with virtually any broadcast headset or separate microphone or headphone fitted with an XLR-5M or "Switchcraft®-style"

XLR-6M connector. Microphone gain is jumper selectable to accommodate all microphone types. The microphone output stage uses a high grade transformer for driving the microphone output. Output levels from 0 dB to -50 dB are jumper selectable.

A high output stereo headphone amplifier provides talent with both program audio and cues from the control room, even in the most noisy environments. The console can be configured so that intercom audio and IFB inputs can be heard in the left/right ear or both, helping the talent to instantly identify the source. The unit accepts one or two channels of IFB, which can be standard self powered, three pin circuits like those found on most broadcast IFB systems.

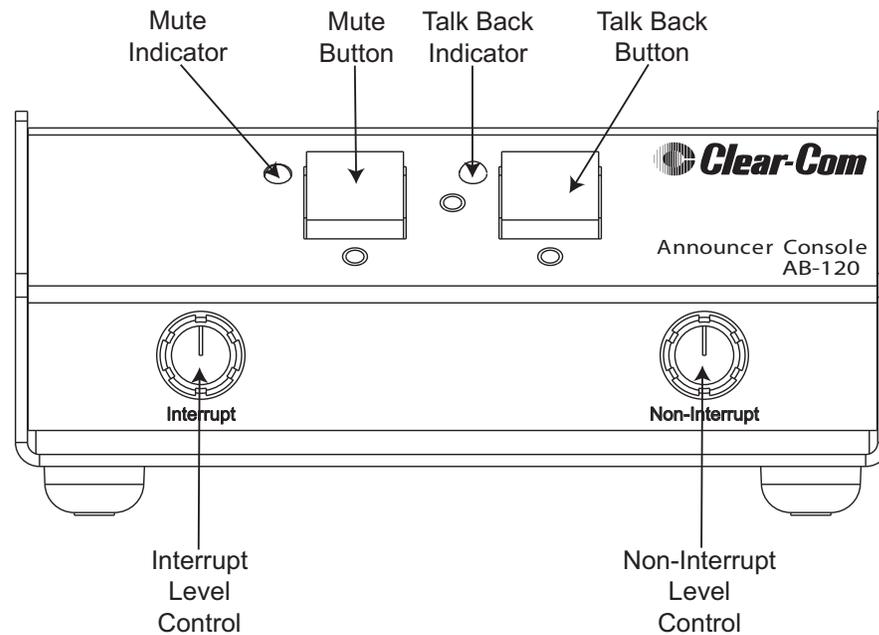
2.3 Operation

Instant access to an intercom system is available with a talkback button. If the talkback button is pressed, the microphone is momentarily switched from on air to intercom use. The Announcer Console can be connected to virtually any party-line intercom system.

A mute button provides momentary silencing of the microphone. Alternately, it can be set to latch when pressed, allowing the talent to switch the microphone on and off with a single switch. The switch is mechanically and electrically designed to ensure no clicking or switching noise is heard when pressed.

The AB-120 plugs into and draws power directly from most intercom and IFB systems, permitting an announce position to be located virtually anywhere, regardless of AC power. When a powered intercom or IFB is not available, the console can be externally powered with the supplied DC adapter.

2.3.1 Front Panel



AB-120 Front Panel Controls

Selecting Microphone Amplifier Gain

The microphone preamplifier and the output line drive amplifier have selectable gains allowing the user to tailor the gain structure to the type of microphone being used and the desired output level. As shipped from the factory, microphone gain is set for a dynamic mic and the output level is set for -10 dBu.

Microphone Preamplifier Gain

The microphone preamplifier gain must be set to provide proper operation of the limiter circuit used in the talkback system. The preamplifier can be set for gains of 40, 50, and 60 dB. Dynamic microphones have a nominal output level of approximately -60 dBu. Electret mic typically have an output level of -40 dBu. Internal jumpers JP9 and JP10 allow selecting the preamplifier gain to 40, 50, and 60 dB.

INPUT LEVEL	JP 9	JP 10
-60 dB (dynamic microphone)	1-2	1-2
-50 dB	2-3	1-2
-40 dB (Electret microphone)	2-3	2-3

Internal jumpers JP9 and JP10 are normally factory set for -60 dB (dynamic microphone).

Line Output Level Select

The operating level at the output is selectable to accommodate the various types of devices that are to be fed. The microphone input of a console would need -60 dBu whereas the line input of a console might need a level of -10 dBu.

Jumper JP8 allows the selection of gain for the output amplifier and the output connector on the rear panel can be plugged into an alternate header on the printed circuit board that has a 30 dB pad inserted in the output. The combination of JP8 and the 30 dB pad allows an output level selection from 0 dBu to -50 dBu in 10 dB steps.

	0dBu	-10dBu	-20dBu	-30dBu	-40dBu	-50dBu
Output Connector	J2	J2	J2	J3	J3	J3
JP8 Position	Open	2-3	1-2	Open	2-3	1-2

The output gain is normally factory set to -10 dBu.

Options for Power

The AB-120 can be powered from the intercom line, the IFB line, or from a local external DC supply. To power it from the intercom line of the IFB line, the unit needs a minimum of 25 VDC. The AB-120 draws approximately 100 mA of current with peaks of 120 mA.

Power from the IFB Line

To power the unit from the IFB line, set jump jacks on pins 2 and 3 of JP5. JP5 selects where the positive DC power is sourced from.

If for noise reasons, pin 1 of the IFB input connector can not be connected to power ground of the AB-120, the power cannot be derived from the IFB line.

Power from the Intercom Line

To power the unit from the intercom line, set jump jacks on pins 1 and 2 of JP5. JP5 selects where the positive DC power is sourced from.

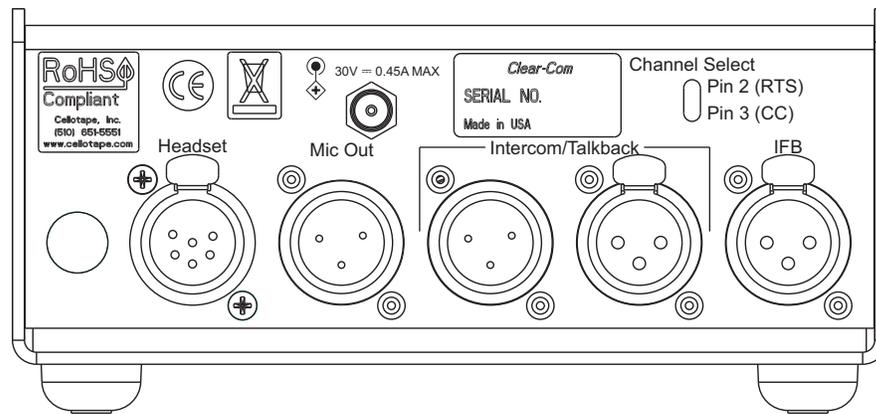
Power from an External DC Supply

If power from the intercom line or IFB line is not available then plug in the DC supply supplied with the unit.

2.3.2 Rear Panel Connectors and Controls

The rear panel of the AB-120 has the following connectors and controls.

- Headset connectors
- Microphone Out Connector
- Male/Female Pair of Intercom Connectors
- IFB Input Connector
- 30 VDC Power Connector
- Channel Select Switch



AB-120 Rear Connectors

Headset Connector

The standard AB-120 is shipped with a headset connector designed for use with any type of announcer headset.

Connection is via a “Switchcraft-style” XLR-6F connector.

Note: See Glossary for details on compatibility.

The pinout of the headset connector is as follows:

1. Microphone Lo (-)
2. Microphone Hi (+)
3. Headphone Common
4. Left Headphone (+)
5. Right Headphone (+)
6. Microphone Shield

The headset should have a separate shielded twisted pair of wires directly to the microphone, otherwise some earphone to microphone crosstalk may be experienced.

The connector is also 5 pin compatible and most standard intercom headsets can be directly plugged into the unit.

Options

The construction of the AB-120 lends itself to modification. The 6 pin XLR could be replaced with a 5 pin XLR.

Next to the headset connector is a 1/4 inch hole intended for the user to install a stereo phone jack for a separate set of headphones.

Electret microphone bias can be enabled by adding a jumper on internal connector J7. This connector has pins 1, 3 and 4 wired to the headset connector. To enable electret microphone bias, add a jumper between pints 5 and 6.

Mic Out Connector

The Mic Out connector provides a feed of microphone input after amplification. The connector is an XLR-3M and is as follows:

- Pin 1 = ground shield
- Pin 2 = +ve mic output
- Pin 3 = -ve mic output

Intercom Line Connectors (XLR 3 male and female)

The AB-120 has a male and female pair of XLR 3 connectors for the intercom line. The male/female pair of connectors are wired paralleled and intended for loop through connection.

The pinout of the connectors when used with a Clear-Com party-line system is as follows (place the channel select switch to 2):

- Pin 1 - ground shield
- Pin 2 = power (+25 to +30 VDC)
- Pin 3 = audio

The pinout of the connectors when used with TW(RTS) intercom systems is as follows (place the channel select to the desired channel):

- Pin 1 - ground shield
- Pin 2 = audio 1 and power (+25 to +30 VDC)
- Pin 3 = audio 2

IFB (XLR 3 female)

The AB-120 has female XLR-3 connectors for the IFB input and is as follows:

- Pin 1 - ground shield
- Pin 2 = IFB 1 and power (+25 to +30 VDC)
- Pin 3 = IFB 2

2.3.3 Description of internal jumper options and adjustments

The AB-120 has internal jumper options, connector selectable microphone output levels, dip switch selection of ear phone output, and headphone sidetone adjustment controls.

As shipped from the factory, the AB-120 has its internal jumpers and dip switches set to implement the Clear-Com party-line as described in its respective section.

The unit is setup for sportscaster mode, option and the mic output level is set for -10 dBu. The unit will operate on power from the intercom line or from the external DC supply.

All of these jumpers and settings may need to be set depending on the application of the unit.



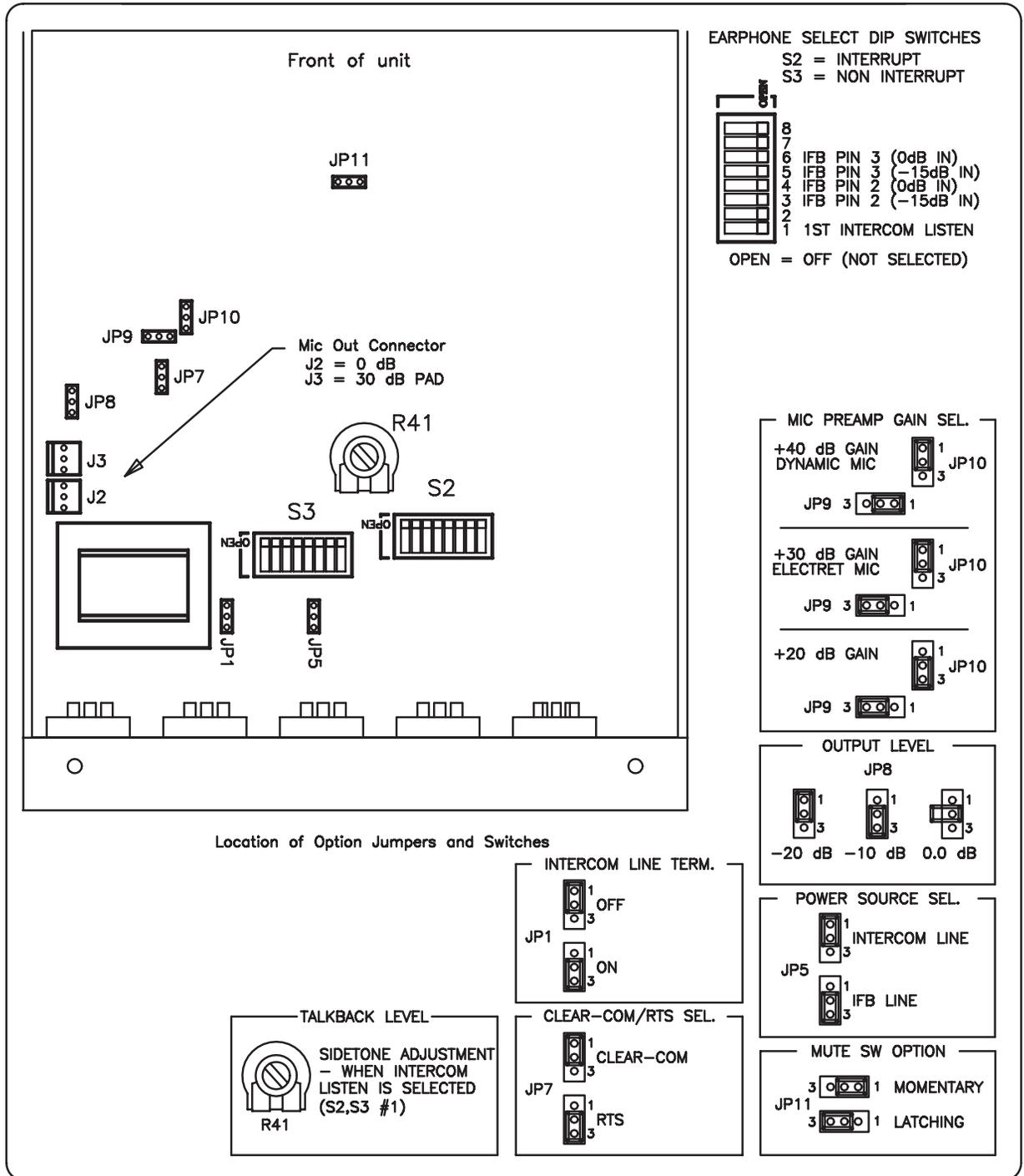
This symbol alerts you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.



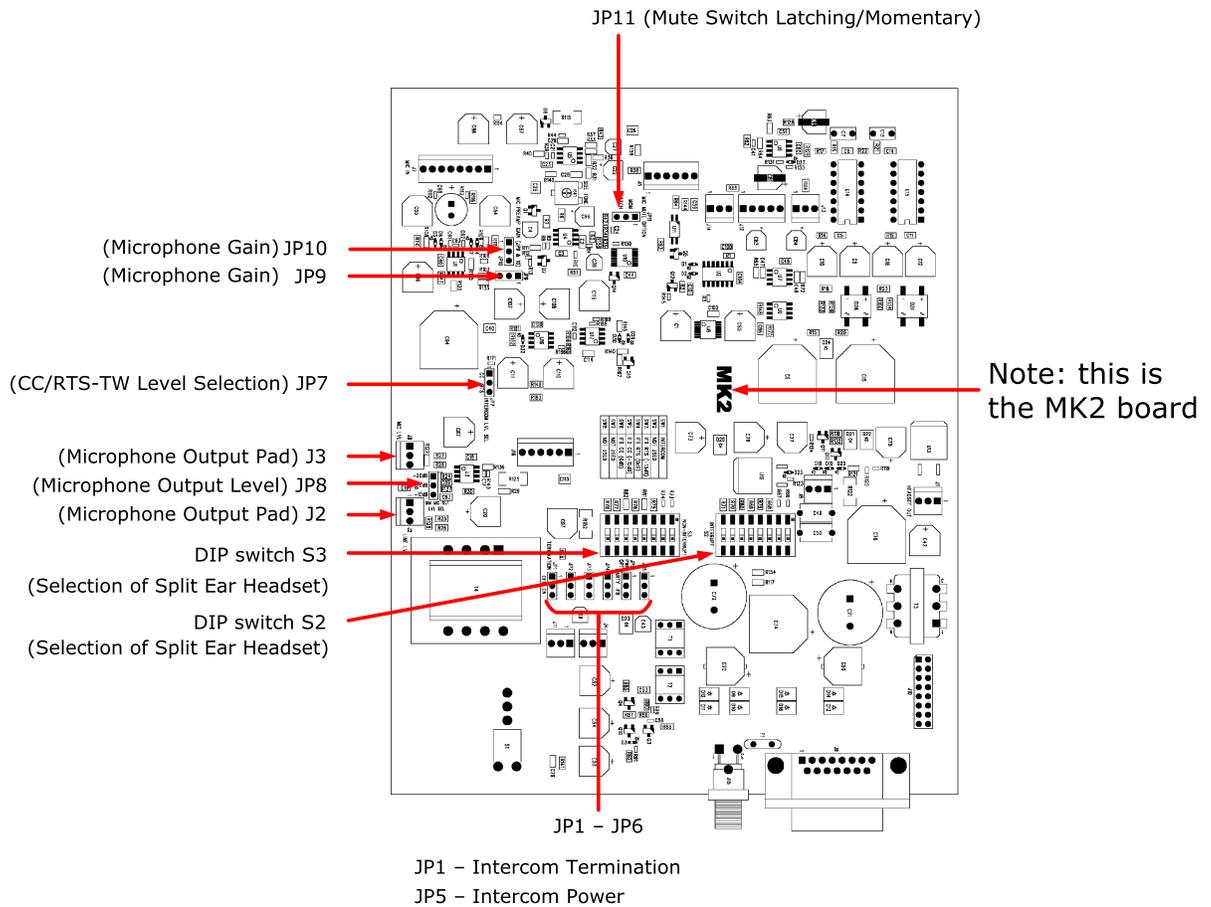
This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

To gain access to the internal options, remove the bottom cover by unscrewing the four rubber feet. While functionally identical, the AB-120s internal layout of jumper settings may be slightly different depending on the manufacturing method. The original AB-120 utilized

through hole components, while the AB-120 MK2 uses surface mounted components. If the circuit board is marked MK2, then you have the Mark 2 version. Otherwise, you have the original Mark 1 version.



Original AB-120 (2007 to 2019) jumper setting locations



AB-120 MK2 (2019 onwards) Jumper setting locations

Jumper Options

There are eleven two position jumpers that provide many options for the operation of the AB-120. To access these jumpers, remove the bottom cover of the unit. Inside the bottom cover is a label describing the functions of jumper and switch.

Note: *Jumpers JP2, JP3, JP4 and JP6 are not used.*

JP1 (Intercom Termination)

JP1 provides termination for the intercom line if needed. The AB-120 is always a remote intercom station and therefore does not provide termination for an intercom line. The termination is provided for the cases where the party-line output of the AB-120 is not used and the party-line drive circuit needs termination to be stable.

As shipped from the factory, the jumper is between pins 1 and 2 of JP1 making the termination inactive. To activate termination, place the jumper between pins 2 and 3.

JP7 (CC/RTS -TW Level Selection)

JP7 allows the send gain on the partyline intercom channel to be increased when driving a TW type intercom line, such as RTS. Placing the jumper between pins 2 and 3 increases the send gain approximately 4 dB.

JP7 is shipped from the factory with its jumper between pins 1 and 2, providing Clear-Com standard levels to the intercom line.

JP8 (Microphone Output Level)

JP8 provides the selection of desired output level for the microphone output.

JP9 and JP10 (Microphone Gain)

These JPs provide selection of the desired gain for the microphone input.

JP11 (Mute Switch Latching/Momentary)

JP11 selects the sportscaster or announcer modes of operation for the front panel push button switches. Connection between pins 1 and 2 enables the sportscaster momentary mode and connection between 2 and 3 enables announcer latching mode.

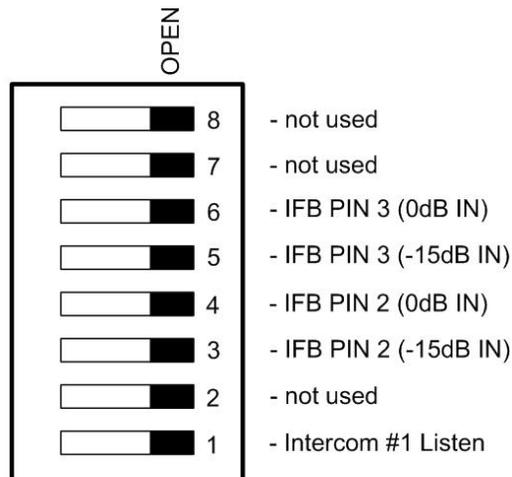
J2 and J3 (Microphone Output Pad)

The microphone output connector on the rear panel can be internally plugged into two different headers on the main PCB. Connecting the output to J2 provides a line level output. Connecting the output to J3 adds a 30 dB pad in the series to provide a microphone level output.

S2 and S3 (Dip Switch Selection of Split Ear Headset Output)

Each headset amplifier has an eight position dip switch providing a selection of inputs to each side of the headset. S2 is for the left ear and S3 is for the right. Any or all of the inputs can be selected at the same time.

The following illustrates the function of each dip switch.



OPEN = OFF (NOT SELECTED)

DIP Switch Settings for S2 and S3

It will be noted that each of the IFB inputs has two dip switches and each has different gains associated with it. Dip switch 4 is for a 0 dB input on the IFB channel. Dip switch 3 is for a lower level on the same IFB input. If the IFB source is a balanced input or from a TW type system, then the 0 dB setting should be used. If the IFB source is from a Clear-Com Party-Line system, then the -15 dB setting is used.

Headphone Sidetone Adjustment

If either talkback channel is selected for listening in the headphone, adjust R41 on the main PCB for the desired amount of talkback that is to be heard in the earphone.

Note: *R41 is close to S2 on the original AB-120 and beside J11 on the AB-120 MK2*

3 Installation

The AB-120 is a versatile interconnection box and can accommodate many types of installation. The AB-120 has two modes of operation; sportscaster mode and announcer mode.

When shipped from the factory the AB-120 has its internal jumpers and dip switches set to implement the Clear-Com party-line setup. The unit will be configured for Sportscaster Console operation and the microphone output level is set for -10 dBu with a dynamic microphone input.

The AB-120 can operate on power from the intercom line or from a suitable external DC power supply.

3.1 Sportscaster Mode -Momentary Microphone Mute

Place a jump jack on pins 1 and 2 of JP11. Both front panel buttons are momentary in operation and microphone output is active except when either of the buttons is pressed. The red LED next to the mute button is lit when the microphone output is active.

Pressing the mute button turns the output of the microphone circuit off as long as the button is pressed.

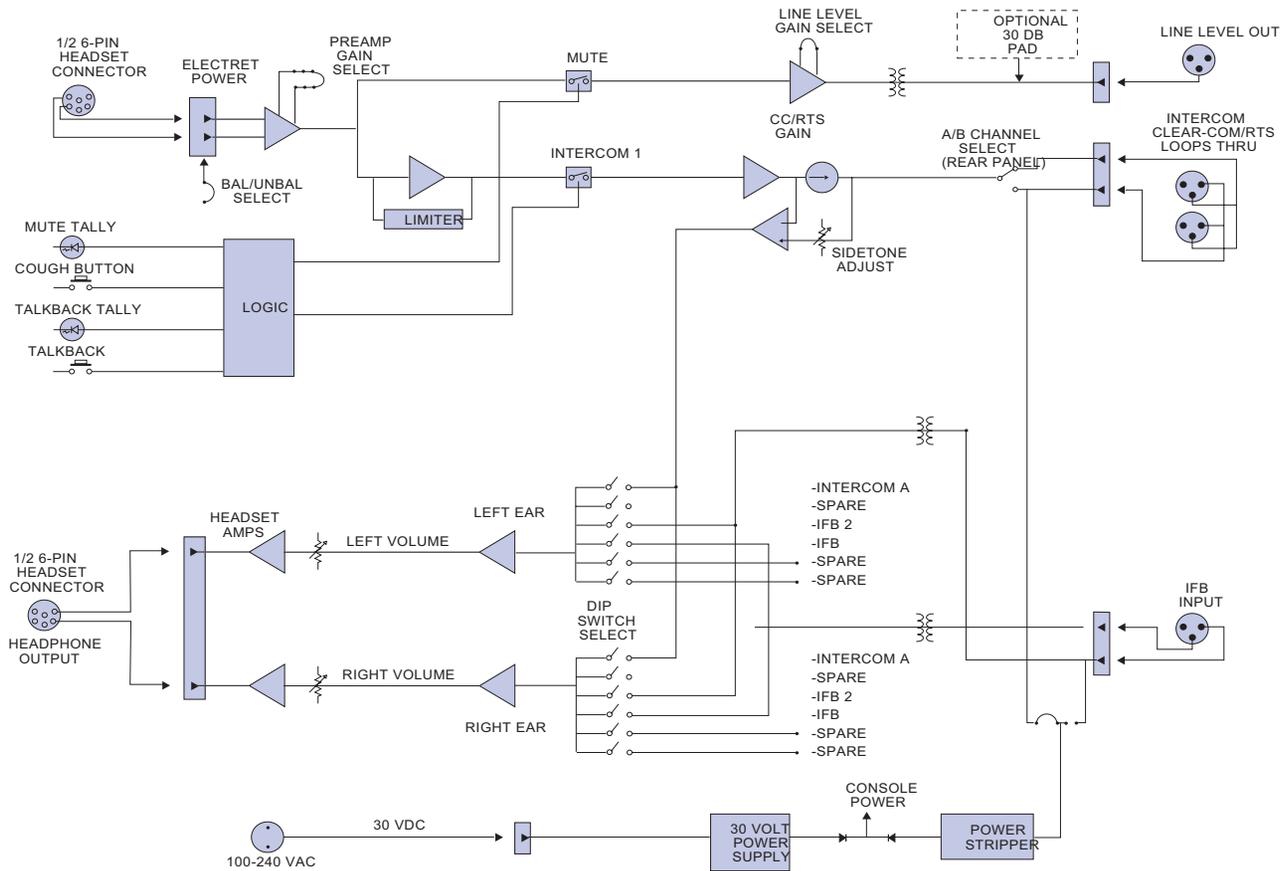
Pressing talkback turns the output of the microphone circuit off and sends the signal to the intercom line. The green LED next to this button is lit when the talkback circuit is activated.

3.2 Announcer Mode - Latching Microphone

Place a jump jack on pins 2 and 3 of JP11. In this mode, the microphone on/off button is latching in action, and talkback is momentary. The red LED next to the on/off button is lit whenever the microphone output is active.

Pressing the on/off button toggles the state of the mic from on to off, or vice versa, each time the button is pressed.

3.3 AB-120 System Block Diagram



AB-120 Console Block Diagram

4 Specifications

Note: 0 dBu is referenced to 0.775 V RMS

4.1 Headset Microphone Input

Input Type	Dynamic, Electret
Input Impedance	1K Ohms
Max Input Level	-60 dBu to -40 dBu switchable

4.2 Headset Output

Load Impedance	≥ 4 Ohms
Output Impedance	47 Ohms
Output Limiter Threshold	-4 dBu \pm 3 dB
Max Output Level before Distortion	-4 dBu

4.3 Party Line Output

Off Noise	< -80 dBu
Output Impedance	> 10K Ohms
Maximum Output	-4 dBu

4.4 Party Line Input

Maximum Level before Clipping	+3 dBu
Sidetone Null Capability	> 25 dB

4.5 Frequency Response

Dynamic Mic - Party Line	40Hz - 22KHz, \pm 3 dB
Dynamic Mic - Line Out	20Hz - 22KHz, \pm 3 dB
Dynamic Mic - 4-Wire Out	100Hz - 22KHz \pm 3 dB
IFB Input - Headset Out	100Hz - 22KHz \pm 3 dB
Party Line - Headset Out	150Hz - 22KHz \pm 3 dB

4.6 Max Distortion

Dynamic Mic - Party Line	<0.1%
Dynamic Mic - Line Out	<0.05%
IFB Input - Headset Out	<0.5%
Party Line - Headset out	<0.1%

4.7 Noise

Dynamic Mic - Party Line	<-75 dBu
Dynamic Mic - Line Out	<-85 dBu
IFB Input - Headset out	<-65 dBu
Party Line - Headset Out	<-65 dBu

4.8 Max Gain

Dynamic Mic - Party Line	41 dB \pm 3 dB
Dynamic Mic - Hot Mic Out	40 dB \pm 3 dB
IFB Input - Headset Out	40 dB/22 dB (switchable) \pm 3 dB
Party Line - Headset Out	34 dB \pm 3 dB

4.9 Rear Panel Connectors

Headset	XLR-6F "Switchcraft-style" 6-pin connector. See Glossary for description.
Microphone Out	XLR-3M
Intercom	2 XLR-3 (Male and Female)
IFB	XLR-3F
Power	2.1mm jack

4.10 Front Panel Controls and Indicators

- (1) Mute button
- (1) Mute indicator LED (red)

- (1) Talk back button
- (1) Talk back indicator LED (green)
- (1) Interrupt level control
- (1) Non-interrupt level control

4.11 Power Requirements

Intercom/IFB Voltage	25-30 VDC
Current	100mA idle, 120mA max
DC Adapter	100 - 240V
Voltage	30V @ 0.5A

4.12 Physical Specifications

Dimensions (152mm x 76mm x 203mm)	6"W x 3"H x 8"D
Weight	2 lbs or 0.9 kg
Operating Temp Range	32 - 122°F (0 - 50°C)

4.13 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.

5 Glossary

Some of the terms used when discussing critical communications for television or theatre may be new to you as they are unique to intercom applications. Although many of the terms are common to other audio applications, to be certain you understand their meanings we offer the following definitions:

All Call: Ability to push one button from the main station and talk to all channels at once on a multiple channel system.

Ambient Noise: Those background sounds that are not part of the specific communication but are picked up by the microphone. Selection of a good “noise-cancelling” mic will reduce ambient noise.

Beltpack: A portable electronics package worn on the belt or mounted on a wall or other convenient location. Interconnects to system with mic cable and is powered by a central power supply or main station.

Bridging, High Impedance (hi-Z): A method of connecting to an audio line (such as Clear-Com) without loading or taking appreciable power from that line. Simply stated, as you add more and more stations to the line, the volume remains constant.

Call Signaling: This feature is included with the majority of Clear-Com products. It is a visual indicator on a station (red light) used to attract the attention of an operator who has removed the headset.

Channel vs. Station: A channel is the line that connects parties together within a party line - it is a two-way talk path. For example, if you have six people who need to hear one director, you have a seven-station single-channel need. If the same director needs to speak privately to any one of the six, add a second channel. You now have a seven-station, two-channel system.

Closed-Circuit: Any intercom which is connected via cable (also called hard-wired). The other type of intercom is wireless and is also available from Clear-Com. However, if you want privacy and versatility, you probably want a closed-circuit system or a combination of both.

Crosstalk: Leakage of audio transmissions from one channel to another.

Dry Pair: A telephone term is used to describe a pair of wires (two conductors) that carry audio but no voltage. Contrast this with a wet pair that carries both audio and voltage.

Duplex: Duplex refers to bi-directional communications. Normal communication between individuals talking face to face is “full duplex”; in other words, you can talk and listen simultaneously. The other alternative is “half-duplex,” such as a push-to-talk situation where one station at a time can talk while others listen. A walkie-talkie is a good example of half-duplex communication.

IFB: The term means “Interrupt Fold Back.” A fold-back is a monitor system that allows, for example, talent to hear their voices or musicians to hear their voices and instruments on stage. IFB (program interrupt) disconnects the audio source while the talk button on the main station is pushed.

ISO: A private conversation path. An ISO channel allows one to simply push a button and transfer themselves and the person they wish to speak with to an isolated channel.

Linking: Linking ties separate channels into one single party line.

Main Station: This is a product that includes both the ability to communicate with multiple channels without connecting them together, and to power all the stations connected to these channels.

Master Station: A remote station which needs AC power to operate.

Multi-Channel: More than one channel.

Party Line (P.L.): Intercom system in which all people talking on the system can talk or listen to each other simultaneously. Also called conferencing.

Point to Point: One path to one person.

Program: Audio source that is fed into the intercom channels.

Program Interrupt: Disconnects the audio source while the talk button on the main station is pushed (IFB).

Remote Mic Kill (RMK): The ability for certain main stations to shut off all microphones on belt packs in a system.

Remote Station: Like the belt pack, this would be any of the products connected to the intercom line that allow duplex or half-duplex conversation, but do not contain a power supply.

Sidetone: This is your own voice heard in your earphone as you are speaking.

Stage Announce (SA): Redirects output of the main station's microphone to an external destination (such as a PA system).

Station: A station is connected to one or more channels. For example, if you have six people who need to hear one director, you have a seven-station single-channel need. If the same director needs to speak privately to any one of the six, add a second channel. You now have a seven-station, two-channel system.

“Switchcraft®-style” 6-pin XLR: Unlike most regular XLR connectors, there are two different versions of 6-pin XLR connectors. The “Switchcraft-style” and the European DIN style. Beware that the “Switchcraft-style” and DIN based versions are not compatible. When selecting Neutrik 6-pin XLR connectors ensure they are “Switchcraft-style” with the -S suffix to the part number for compatibility with Clear-Com products.

Termination: Passive network that is connected in each channel, usually on the power supply or main station.

6 Technical Support and Repair Policy

To ensure that your experience with Clear-Com and our World Class products is as beneficial, effective and efficient as possible, we would like to define the policies and share some "best practices" that can accelerate any problem solving processes which we may find necessary and to enhance your customer service experience. Our Technical Support, Return Material Authorization, and Repair Policies are set forth below. These Policies are subject to revision and constantly evolve in order to address our Customers' and the Market's needs. Therefore, these are provided by way of guidance and for information only and may be changed at any time with or without Notice.

6.1 Technical Support Policy

- a. Telephone, online, and e-mail technical support will be provided by the Customer Service Center free of charge during the Warranty Period.
- b. Technical support will be provided free of charge for all software products under the following conditions:
 - i. The application, operating, and embedded software is installed on a product covered by Clear-Com's Limited Warranty, and:
 - ii. The software is at the current release level; or,
 - iii. The software is one (1) version removed from current.
 - iv. Older versions of software will receive "best-effort" support, but will not be updated to correct reported bugs or add requested functionality.
- c. For Technical Support:
 - i. North and South America, (incl. Canada, Mexico, and the Caribbean) & US Military:
Hours:0800 - 1700 Pacific Time
Days:Monday - Friday
Tel:+1 510 337 6600
Email:Support@Clearcom.com
 - ii. Europe, the Middle East and Africa:
Hours:0800 - 2000 Central European Time
Days:Monday - Friday
Tel:+49 40 853 999 700
Email:TechnicalSupportEMEA@clearcom.com

- iii. Asia-Pacific:
 - Hours:0800 - 1700 Pacific Time
 - Days:Monday - Friday
 - Tel:+1 510 337 6600
 - Email:Support@Clearcom.com
- d. Email Technical Support is available for all Clear-Com branded products free of charge for the life of the product, or two years after a product has been classified as obsolete, whichever comes first. To log or update a request, send an email to: Support@Clearcom.com.
- e. Support for Distributor and Dealer Sales
 - a. Distributors and Dealers may utilize the Customer Service Centers once a system has been installed and commissioned. Clear-Com Systems and Applications Engineers will provide support to the Distributor from the pre-sales stage through to satisfactory installation for new system purchases. Customers will be encouraged to contact their Dealer or Distributor with their installation and technical support enquires rather than using the Customer Service Centers directly.
- f. Support for Direct Sales
 - i. Customers may utilize the Customer Service Centers once a system has been installed and commissioned by Clear-Com Systems and Applications Engineers, or in the case of project installations, once the Project Team has completed the hand-over to the Support Centers.

6.2 Return Material Authorization Policy

- a. Authorizations: All products returned to Clear-Com or a Clear-Com Authorized Service Partner must be identified by a Return Material Authorization (RMA) number.
- b. The Customer will be provided with an RMA number upon contacting Clear-Com Sales Support as instructed below.
- c. The RMA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center without a proper RMA number is subject to return to the Customer at the Customer's expense.
- d. Damaged equipment will be repaired at the Customer's expense.
- e. Returns are subject to a 15% restocking fee.

- f. Advance Warranty Replacements (AWRs);
- i. During the first 30 days of the Standard Warranty Period: Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a new replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.
 - ii. During days 31-90 of the Standard Warranty Period: Once the equipment fault has been verified by Clear-Com or its authorized representative, Clear-Com will ship a like-new, fully refurbished replacement product. The Customer will be provided with an RMA number and be required to return the faulty equipment within 14 days of receipt of the replacement or will be invoiced for the list price of a new product.
 - iii. To obtain an RMA number or request an AWR:
North and South America, Asia-Pacific, and US Military:
Hours:0800 - 1700 Pacific Time
Days:Monday - Friday
Tel:+1 510 337 6600
Email:SalesSupportUS@Clearcom.com

Europe, the Middle East and Africa:
Hours:0800 - 1700 GMT + 1
Days:Monday - Friday
Tel:+ 44 1223 815000
Email:SalesSupportEMEA@Clearcom.com
 - iv. Note: AWRs are not available for UHF WBS Analog wireless intercom systems. UHF WBS Analog wireless intercom systems out-of-box failures must be returned to Clear-Com for repair.
 - v. Note: Out-of-box failures returned after 90 days will be repaired and not replaced unless approved by Clear-Com Management.
 - vi. Note: AWRs are not available after 90 days of receipt of product unless an AWR Warranty Extension is purchased at the time of product purchase.
 - vii. Note: Shipping charges, including duties, taxes, and insurance (optional), to Clear-Com's factory are the responsibility of the Customer.

- viii. Note: Shipping AWRs from Clear-Com is at Clear-Com's expense (normal ground or international economy delivery). Requests for expedited shipping (E.g. "Next-Day Air"), customs duties, and insurance are the responsibility of the Customer.

6.3 Repair Policy

- a. Repair Authorizations: All products sent to Clear-Com or a Clear-Com Authorized Service Partner for repair must be identified by a Repair Authorization (RA) number.
- b. The Customer will be provided with an RA number upon contacting Clear-Com Customer Services as instructed below.
- c. The RA number must be obtained from Clear-Com via phone or email prior to returning product to the Service Center. Product received by the Service Center without a proper RA number is subject to return to the Customer at the Customer's expense.
- d. Return for Repair
 - i. Customers are required to ship equipment at their own cost (including transportation, packing, transit, insurance, taxes and duties) to Clear-Com's designated location for repair.

Clear-Com will pay for the equipment to be returned to the Customer when it is repaired under warranty

Shipping from Clear-Com is normal ground delivery or international economy.

Requests for expedited shipping (E.g. "Next-Day Air"), customs duties, and insurance are the responsibility of the Customer.
 - ii. Clear-Com does not provide temporary replacement equipment ("loaner") during the period the product is at the factory for repair. Customers should consider a potential prolonged outage during the repair cycle, and if required for continuous operations purchase minimum spare equipment required or purchase an AWR Warranty Extension.
 - iii. No individual parts or subassemblies will be provided under warranty, and warranty repairs will be completed only by Clear-Com or its Authorized Service Partner