



The IC-52B is the most versatile Audio Intercom ever built; yet it is also the easiest to integrate into your design. The audio quality of the IC-52B is superb. Noise and Distortion are very low. Selectable equalization optimizes voice communications. The Automatic Level Control assures optimum performance. There are separate controls for Audio Level, and Reach. Once set, the Audio Level remains constant over wide dynamic input range. The user may wander throughout the room, and still be heard at a nearly constant level without any operator adjustments!

The IC-52B incorporates two universal Microphone/Line Level inputs. Each input is jumper selectable for the input gain range desired for your project. Hands-Free operation is easily achieved with the IC-52. The selectable Voice Operation (VOX) operates smoothly and flawlessly. Electronic switching takes less than 3mS. Setup indicators make adjustments easy. The IC-52 incorporates two selectable Notch-Filters to reduce acoustic feedback. One filter has an optimized frequency range to compensate for poor room acoustics. The other has a higher frequency range to reduce microphone to wall/glass resonance.

The logic interface has a plethora of Inputs and Output Options. The Indicators are comprehensive, yet simple. The interface is fully configurable with jumpers, however common functions are preset.

Line Level, 0dBm Outputs may be configured for Paging, Monitoring or Logging. Jumpers allow for Audio Signal Selection, and Keying. The Tech Works PA-BUSS Line Level Output is fully configurable. Pre-emptive Music is accommodated using the Tech Works PA-402 Power Amplifier

Modular Construction makes the IC-52 ideal for integrated designs. The unit is small; mounting is flexible, and easy. Power is from a Universal Plug-in D.C power adapter. All I/O is through Euro-Style connectorized barrier strips.

IC-52B

TWO CHANNEL AUDIO INTERCOM AMPLIFIER Installation and Operations Manual

BENEFITS

- Very Versatile
- Easy to Use
- High Quality Audio
- Automatic Level Control
- Hands Free Operation (VOX)
- Simple or Full Duplex Operation
- Solid State Switching <3mS
- Universal Line / Mic Inputs
- Built in Audio Notch Filters

Design Information

Inputs: R.F. and static electricity protected

Outputs: short circuit protected

Frequency Response: 250 Hz to 10 KHz
10-Watts RMS Sine Wave output, 25 Volts (Balanced)

Distortion at full voltage output < 1% T.H.D.

Power Supply Required: 24 Volts DC @ 2.2 Amps for full rated output.

Unit is intended to use with class 2 power source (sold separately)

Microphone Inputs:

Configured for a Microphone Level Input: 2000 Ohms Balanced
Selectable Equalization - 3 settings optimized for voice communication
Selectable Phantom Power (22 Volts, Short Circuit Protected)

Configured for a Line Level Input:
2000 Ohms Balanced, 1000 Ohms Unbalanced

Color: Light Gray metal enclosure

Weight: 3 lb

Dimensions: 8.5" W X 6" D X 1.75" H



Tech Works®

"Making Specialized Communication Easy"

How to use this Manual

Those wishing to use one of the standard Configuration Templates, should first read the *Overview*, and then proceed to the appropriate Configuration Template for your application. The *Setup, Adjustments* section should also be read before installation.

For those users who wish to do their own engineering then all sections may be useful. You may also wish to contact a Tech Works application engineer for assistance.

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Overview

The IC-52B is the most versatile Audio Intercom ever built. Yet it is also the easiest to integrate into your design. Configuration Templates support every common application. Follow the Setup and you're done. If there is not a template for your application, give us a call; we will be pleased to assist you to configure the IC-52B into your design.

The audio quality of the IC-52B is superb. Noise and distortion are very low. Selectable equalization optimizes voice communications. The Automatic Level Control assures optimum performance. There are separate controls for Audio Level, and Reach. Once set, the Audio Level remains constant over wide dynamic input range. The independent Reach Control allows for optimized accommodation of the input signal level. The user may wander throughout the room, and still be heard at a nearly constant level without any operator adjustments!

Hands-Free operation is easily achieved with the IC-52B. The selectable Voice Operation (VOX) operates flawlessly. Electronic switching takes less than 3mS. Setup indicators make adjustments easy

The IC-52B incorporates two selectable Notch-Filters to reduce acoustic feedback. One filter has an optimized frequency range to compensate for poor room acoustics. The other has a higher frequency range to reduce microphone to wall/glass resonance.

In every way the IC-52B is the Universal Audio Intercom Amplifier Solution. The logic interface has a plethora of Inputs and Outputs. However standard functions require few wires. The Indicators are comprehensive, yet a simple. The interface is fully configurable, with jumpers, however common functions are preset. Audio controls are on the IC-52B front panel.

Line Level, 0dBm Outputs may be configured for Paging, Monitoring or Logging
Jumpers allow for Audio Signal Selection, and Keying

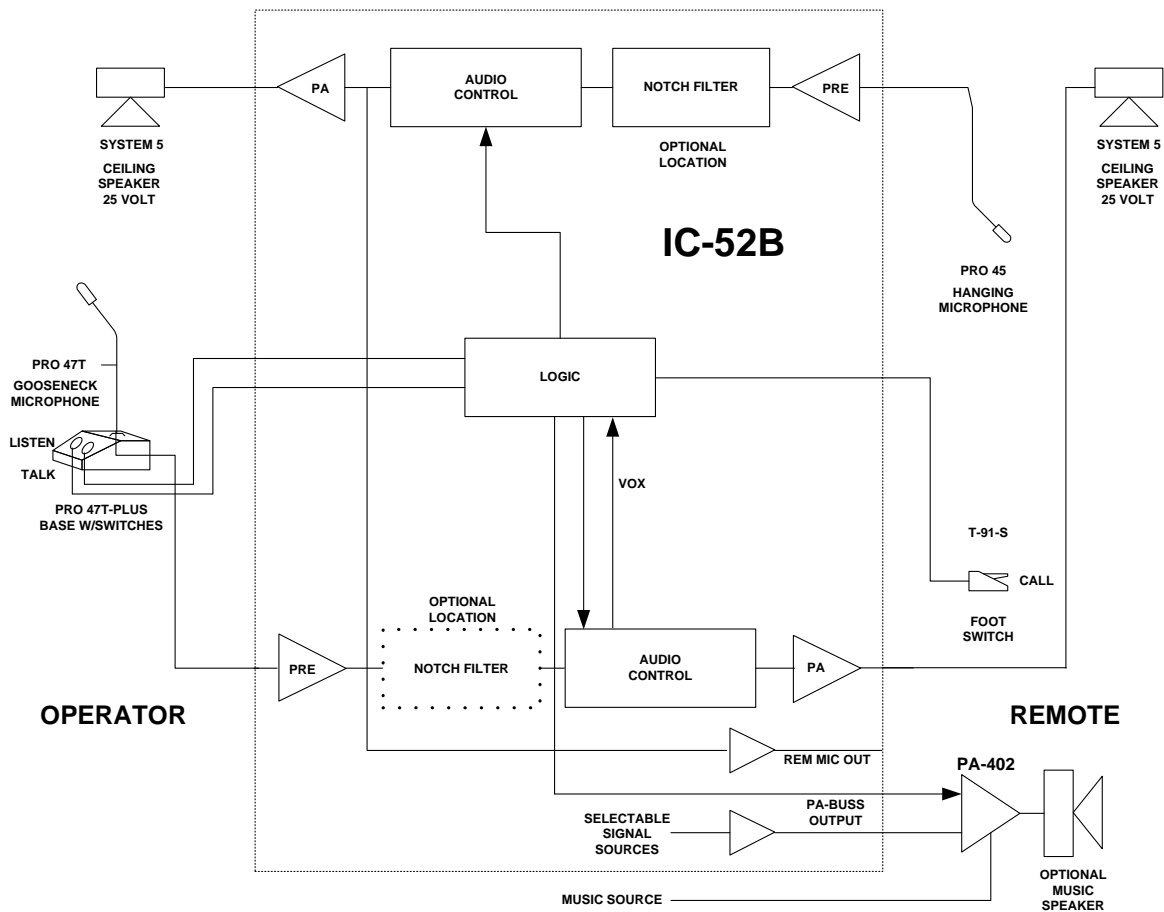
The Tech Works PA-BUSS Line Level Output is fully configurable. Pre-emptive Music is accommodated using the Tech Works PA-402 Power Amplifier

Modular Construction makes the IC-52B ideal for integrated designs. The unit is small; mounting is flexible, and easy. Power is from a Universal Plug-in D.C power adapter. All I/O is through Euro-Style connectorized barrier strips.

The IC-52B has major improvements, over its predecessor:

- Universal Microphone/Line Inputs
- Phantom Power now 23 Volts Current Limited (used to be 10 Volts)
- Gain Structure change; Rotary Microphone Gain Control, Trim-Pot Speaker Level
- 25 Volt, 10 Watt Speaker Outputs
- Line Outputs, inbuilt, *no Option PCB required*
- PA-BUSS Output Connector, Easy Connectivity to other Tech Works Products
- Privacy Tone removed

IC-52B Functional Diagram



Each audio path or channel has its own audio control section, which provides Automatic Level Control, Amplifier Muting and other functions. These can be operationally assigned for specific applications based on placement of removable jumpers inside the unit.

A two band notch filter is included to reduce feedback. These filters are shipped from the factory disabled; they can be enabled by moving jumpers to the Remote or Operator Channel. Notch filters must be set up in the field.

The Logic Control section provides the interface of the control contact inputs as well as the audio control for muting audio signals depending on how the unit is configured. If it is configured for full duplex then only muting is enabled. If the Call In feature is active, the logic controls the tone interfaces to the Operator Speaker amplifier.

Configurable Line Level Outputs are provided for Paging, Monitoring or Logging

A PA-BUSS output may be used with a PA-402 Power Amplifier for Pre-emptive Music

Specifications

General:

Dual Channel Universal Audio Intercom Amplifier
Inputs: R.F. and static electricity protected
Outputs: short circuit protected
Frequency Response: 250 Hz to 10 KHz
10-Watts RMS Sine Wave output, 25 Volts (Balanced)
Distortion at full voltage output < 1% T.H.D.
Power Supply Required: 24 Volts DC @ 2.2 Amps for full rated output
Unit is intended to use with class 2 power source (Sold Separately)
24 Volts D.C. 48-Watts Maximum

Microphone/Line Inputs:

Both Operator and Remote

Configured for a Microphone Level Input:
2000 Ohms Balanced
-76dBm or -60dBm (Selectable) minimum input (Balanced) for full rated output
Selectable Equalization - 3 settings optimized for voice communication
Selectable Phantom Power (23 Volts, Short Circuit Protected)

Configured for a Line Level Input:
2000 Ohms Balanced, 1000 Ohms Unbalanced
Balanced input -35dBm to +5dB or -20dBm to +20dB Accommodation range Un-
Balanced Input -30dBm to +10dB or -10dBm to +20dB Accommodation range

Speaker Outputs:

Both Operator and Remote

Balanced
25-Volts, 10-Watts (Maximum)

Line Level Outputs:

Transformer Isolated ~0dBm

Remote Microphone, after signal processing
May be keyed by control inputs

Mixed Output

Selectable summing of any of:
Remote Microphone, after signal processing
Operator Microphone, after signal processing
Call Tone
All signals may be keyed by control inputs

PA-BUSS Output, signal pairs:

Configurable with internal jumper options

Power, 23 Volts, 350 Milli-Amps fold back current limited, *short circuit current ~ 40MA*

Line Level Output, Transformer Isolated ~0dBm

ALERT, indicates attention is requested

Automatic Level Control:

Operator and Remote

Greater than 40dB Automatic Level accommodation

Fast Attack, <10mS

Feed Forward Control, no 'Pumping'

Independently adjustable Microphone Gain

Notch Filters

Selectable Channel: Operator; Remote; Not used

Notch Depth > 10dB

Two tandem frequency ranges: 250-1000Hz; 750-3000Hz

Voice Activation (VOX)

VOX setup indicator

Electronic Switching <3mS

Silent Switching, no Pops

Adjustable Recovery Delay

Call Tone

Uses Operator Speaker

Selectable

Continuous, or One Shot

Adjustable Level

Mechanical Detail

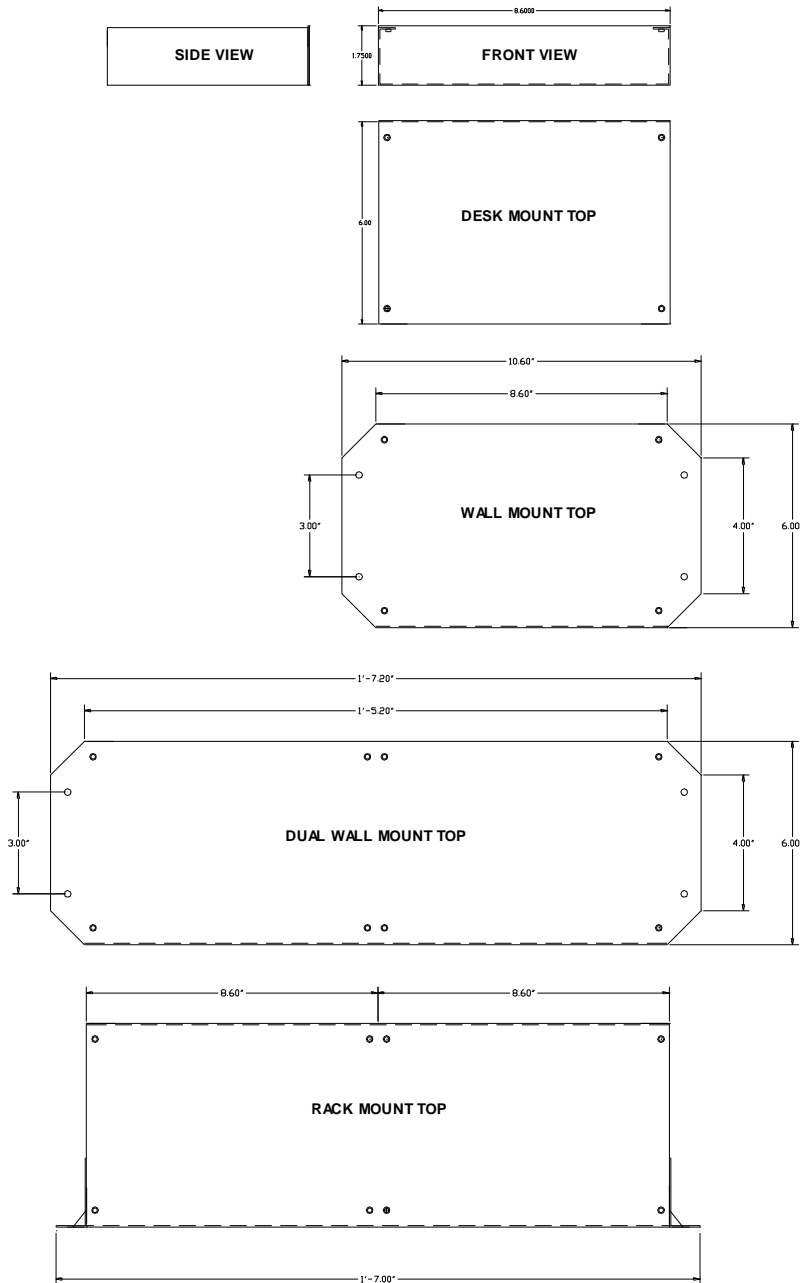
1U, Half Rack, 8½" X 1¾" X 6"

Mounting Options: Table-Top; Under Counter; Rack

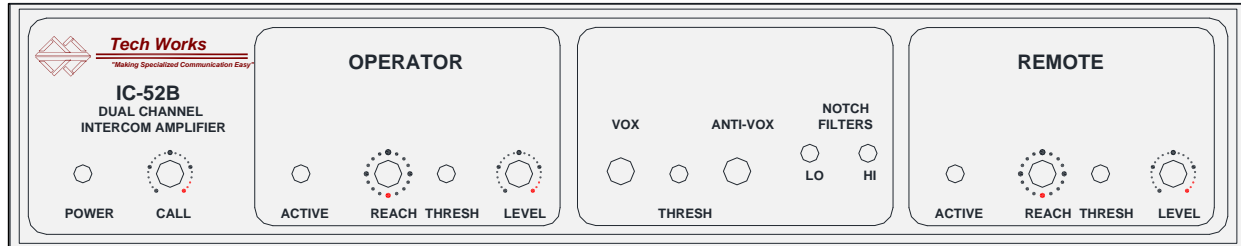
Approximately 3 lbs

Modular aluminum enclosure

Euro-Style connectorized barrier strips



FRONT PANEL CONTROLS AND INDICATORS



IC-52B Front View

Power Indicator

Green when operating normally

Call Tone Level

Control trimpot, sets the level of the tone from the Operator speaker associated with a 'Call' button closure.

“OPERATOR” (Remote Microphone to Operator Speaker)

Active Indicator

Green: Remote Microphone is keyed, Operator Speaker Amplifier is ON

'Reach', Remote Microphone Gain

16 Position Switch, 3dB/step

Sets preamplifier sensitivity for Normal Microphone input level

'Reach' Level Indicator, Remote Microphone Level

Off, Microphone Off

Green, low input level

Green, flashing to Red, Normal Operation

Speaker Level

Control trimpot, sets the listening level from the Operator Speaker

Voice Activation

VOX Sensitivity trimpot, when fully CCW, VOX is disabled

VOX Setup Indicator, Green when Operator is listening, or muted,
Red when Operator is talking (See setup instructions)

Anti-VOX Trimpot (Negates *inside* Speaker Microphone acoustic coupling)

Notch Filters:

'LO' Band Notch Filter trimpot, 250 to 1000Hz

'HI' Band Notch Filter trimpot, 750Hz to 3000Hz

“REMOTE” (Operator Microphone to Remote Speaker)

Active Indicator

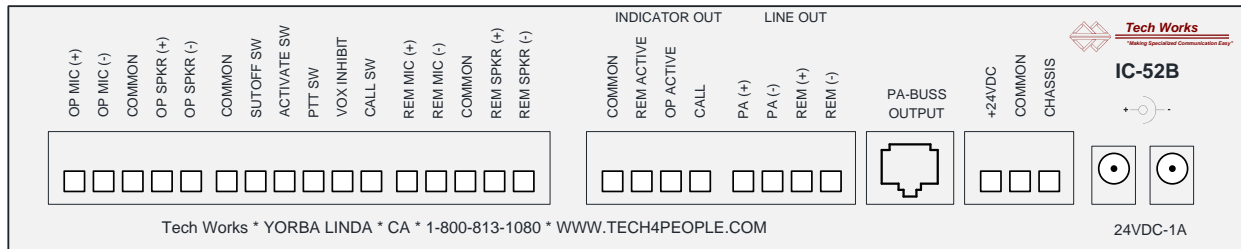
Green: Operator Microphone is keyed, Remote Speaker Amplifier is ON

'Reach', Operator Microphone Gain
 16 Position Switch, 3dB/step
 Sets preamplifier sensitivity for Normal Microphone input level

'Reach' Level Indicator, Operator Microphone Level
 Off, Microphone Off
 Green, low input level
 Green, flashing to Red, Normal Operation

Speaker Level
 Control trimpot, sets the listening level from the Remote Speaker

REAR PANEL CONNECTIONS



IC-52B Rear View

Audio I/O, Euro Style Barrier Strip

Operator Microphone/Line Input, Configurable, see Specifications, and Jumper Options

Operator Speaker Output

Remote Microphone/Line Input, Configurable, see Specifications, and Jumper Options

Remote Speaker Output

Page Output Line Level Output, after signal processing, ~0dBm

Remote Microphone Line Level Output, after signal processing, ~0dBm

PA-BUSS Output, RJ-45 Connector, signal pairs:

Power, 23 Volts, current limited

Line Level Output, after signal processing, ~0dBm

ALERT, indicates attention is requested

Control Inputs, Euro Style Barrier Strip, common sensing for Switches, or PLC

Switch Common

Shutoff (Lowest Priority) - Active low, momentary, or sustained, see below
Disables both Operator and Remote Speakers
(Overridden by “Activate”, “Push to Talk”)
Power on, quiescent state, Operator Shutoff

Activate - Active Low, momentary, or sustained
Overrides “Shut Off”,
Cancels Call Tone (Jumper Option)
Cause Privacy Tone to be sent (Jumper Option)

Push to Talk (PTT) - Active Low, momentary or sustained
Forces the Remote speaker on while depressed (Sustained)
Cancels “Call Tone” (Jumper Option)
Activates the Intercom if Inactive

VOX Inhibit - Active low, sustained
Defeats VOX while depressed,
Provides privacy to the Operator microphone, when using VOX

Call - Active low, momentary
Causes ‘Call Tone’ to be sent to the Inside speaker
Causes Call Light to flash

Indicator Outputs, Euro Style Barrier Strip

Open Collector Transistors, Common sensing for Indicators, or PLC V<30Volts, I<200MA

Common

Remote Active, Remote Microphone Keyed, low when Keyed

Operator Active, Operator Microphone is Keyed, low when Keyed

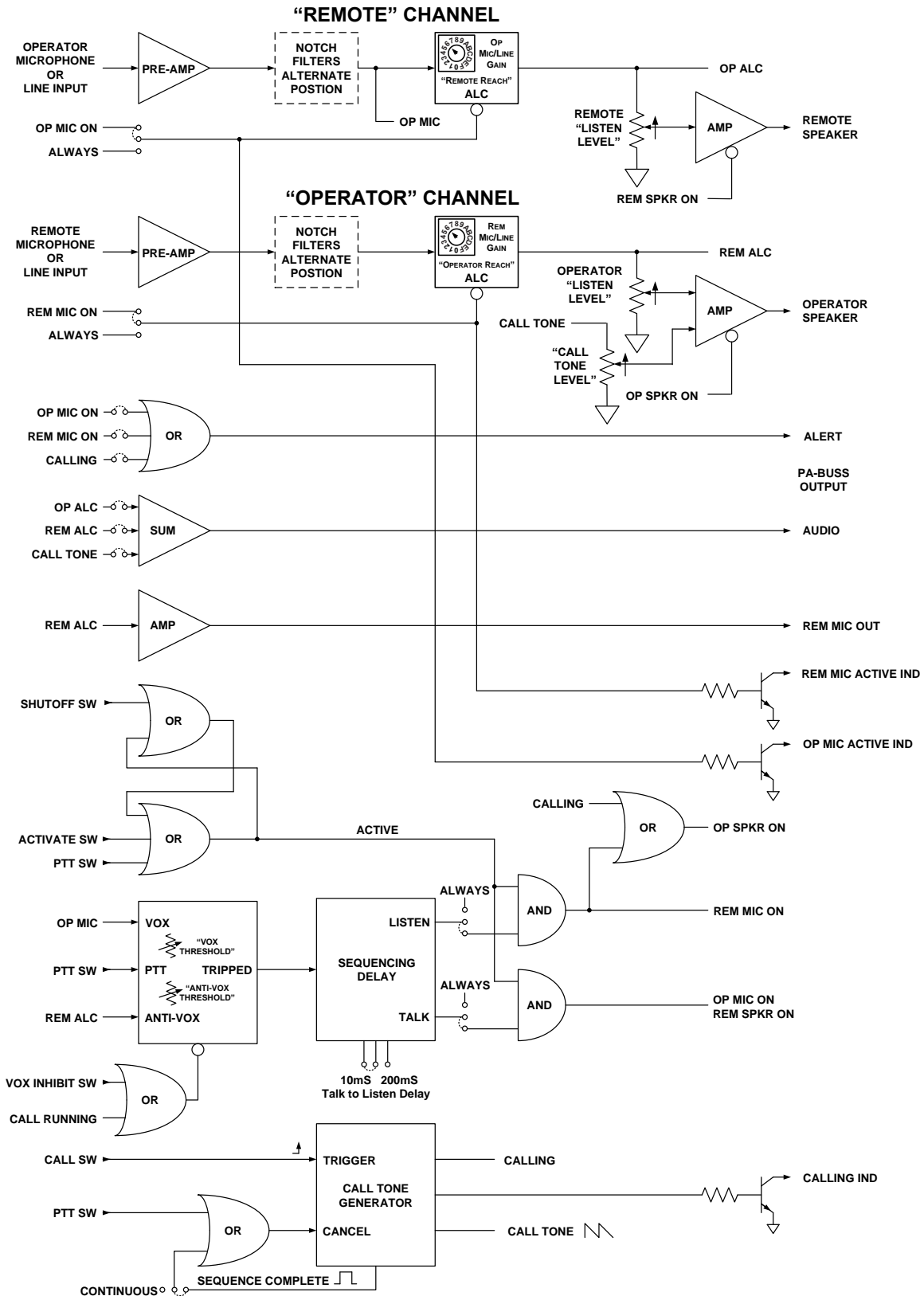
Call Indicator, flashes Low when Call Tone is present

Power, Euro Style Barrier Strip, connected in parallel with Barrel Connector

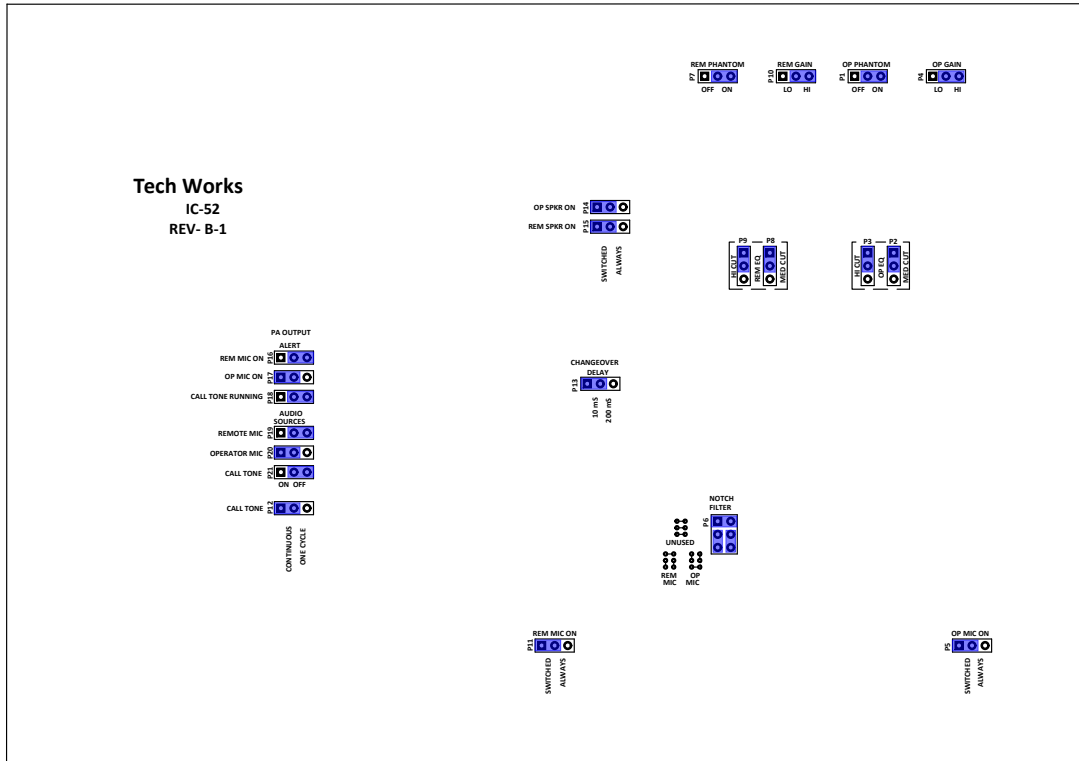
+24 Volts, DC
Power Supply Return
Chassis

Barrel Connector, two in Parallel
PJ-102A, center connector positive

Simplified Block Diagram



Jumper Options (Refer to the Block Diagram for Jumper Function)



IC-52B PCB Jumper Locations

The IC-52B is designed to accommodate many applications. The Configuration for Applications is achieved with Jumper Options. The Unit is shipped with Options Shown in the Diagram above. The explanation of how the Option affects Operation follows

Call Tone Shutoff

The Call Tone is edge triggered by a Switch Closure
 The Call Tone is Cancelled by the a PTT Switch Closure

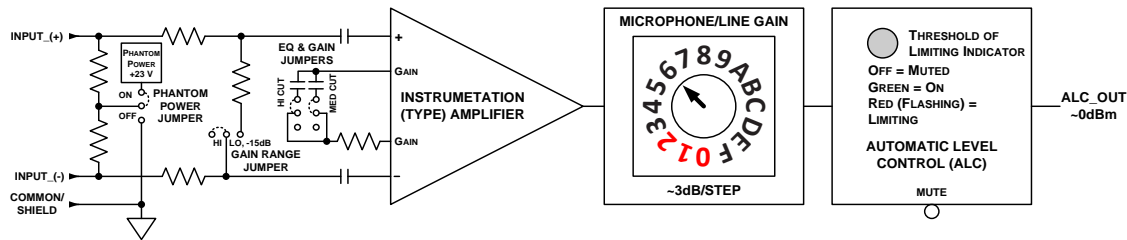
The Call Tone may run a single cycle and Stop	ONE CYCLE
Continuously until the PTT switch is pressed	CONTINUOUS

Change Over Delay

These Jumpers control the switching time from the Remote Speaker being active, to the Remote Microphone turning on. When the Remote Speaker is also being used as the Remote Microphone it is necessary to have a small delay or an acoustic pop will be heard at the Operator position. The amount of delay is determined by experiment.

Normal for separate Microphone and Speaker in a non-reverberant environment	10mS
Severe Reverberant Environment or Remote Speaker also being used as a Microphone	200mS

Universal Microphone/Line Inputs (Notch Filters not shown)



This input can accommodate a wide range Microphone or Line inputs
 The Microphone Sensitivity is adjustable with the 16 Position Rotary Switch
 With ~3db/Step for a 45 dB range
 By using the Gain Switch, and Jumper options the total Range is -75dB to +20dB

The Signal is processed with an ALC, to assure the Output never exceeds 0dBm
 Indicators allow the Microphone Gain to be adjusted to the optimal level

Phantom Power:

Terminating Resistors referenced to +23Volts, Current limited @ 7MA , ON
 Terminating Resistors connected to Common, OFF

Gain Range:

Input Gain reduced 15dB, LO
 Full Gain, HI

EQ Jumpers (Two):

Both Jumpers, upper position, lowest frequency Roll-off
 (Used with most gooseneck and Hanging microphones)

Only MED CUT Jumper Upper Position, Medium frequency Roll-off
 (Used with most flush mounted microphones)

Only HI CUT Jumper Upper Position, Highest frequency Roll-off
 (Used with most Speakers used as a microphone)

Both Jumpers Lower Position, (Line Input)
 ~170Hz Roll-off, Sensitivity reduced to -35dBm input for full Output

Notes:

If the Limiting occurs with the Stepped Gain Control on "0", "1" or "2"
 There is insufficient Headroom, use the "LO" Gain Range

For a Balanced Line Level Input the LO Gain Position is also used
 The Accommodation Range for full output is ~ -10dBm to +20dBm (With 10dB of Headroom)

Notch Filters

A Notch Filters are useful in Environment with one or two strong Resonant Modes
Examples are floor to ceiling modes, or small Room wall-to-wall modes
'Notching out' these resonances increases intelligibility, and reduces feedback
The Notch Filters may be used in either Channel, or not at all



Notch filters are shipped (default) in the Remote to Operator channel.
The factory settings are: LO, fully CCW, HI, Fully CW; the Notch Filters are essentially disabled

Audio Switching Configuration Jumpers

The IC-52B has two Audio Channels, designated as Remote Microphone to Operator Speaker and Operator Microphone to Remote Speaker.

With all Signal Flow Jumpers in place, Half Duplex Operation is supported.

Half Duplex Operation, the Microphone Inputs and Speaker Outputs are sequenced:

When the Operator is "Listening":

The Remote Microphone is ON
The Operator Microphone is OFF
The Operator Speaker is ON
The Remote Speaker is OFF

When the Operator is "Talking":

The Remote Microphone is OFF
The Operator Microphone is ON
The Operator Speaker is OFF
The Remote Speaker is ON

However, the control of the Microphones and Speakers are controlled by Jumpers
Any of these sections may always be ON

These 'always' selections are useful in implementing:

Always Listening, Push to Talk
Full Duplex Operation
Always Monitoring to the PA-BUSS Output
Etc.

Operator Microphone ON:

Always On
Sequenced

ALWAYS
SWITCHED

Remote Microphone ON:

Always On
Sequenced

ALWAYS
SWITCHED

Operator Speaker ON (Also Keys Remote Microphone):

Always On
Sequenced

ALWAYS
SWITCHED

Remote Speaker ON (Also Keys Operator Microphone):

Sequenced
On when the Intercom is Active

ALWAYS
SWITCHED

PA-BUSS Output

The PA Buss is provided for easy interface to other Tech Works PA-Buss products such as the PA-402 Music and Paging Amplifier.

There are several Audio Selection Choices, which are summed. These selections determine what signals are sent to the PA-402 and when they are sent.

What to send:

There are several Audio Selection Choices, which are summed (Jumpers)

Remote Microphone:	ON	OFF
Operator Microphone:	ON	OFF
Call Tone:	ON	OFF

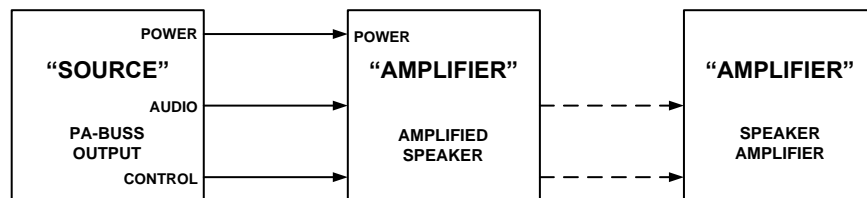
When to send

The PA-BUSS Output, ALERT Signal (Keying Signal) is selectable, logical OR'ed

Remote Microphone:	ON	OFF
Operator Microphone:	ON	OFF
Call Tone Running:	ON	OFF

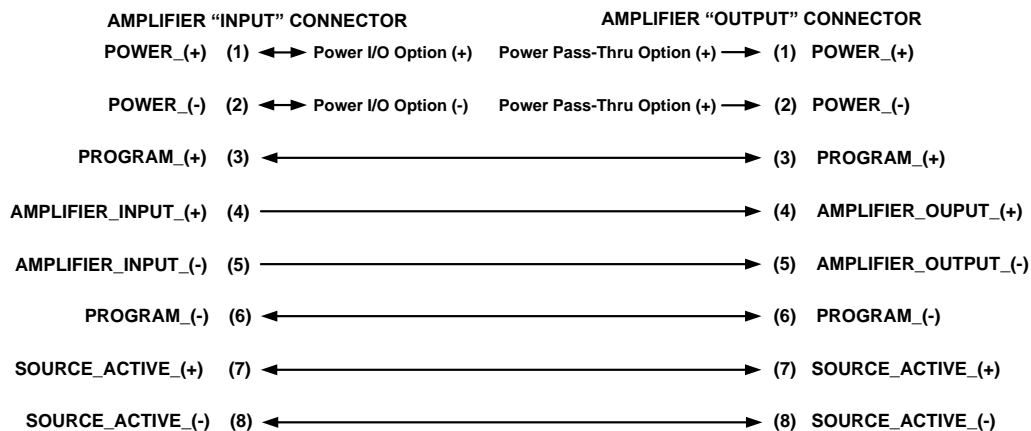
The PA-BUSS (Audio Distribution Buss) has four signal pairs:

"Buss Power"	(Option)	Current Limited, 23-Volts
"Program"	(Audio Option)	Background Audio or Music
"Page/Communications"	(Audio)	Page/Monitor/Communications Audio
"Alert"	(Control)	Indicates Action is Requested



The IC-52B, PA-BUSS OUTPUT is always powered, 23 Volts, at a Maximum of 350 Milliamps

PA-BUSS, AMPLIFIER: Internal Signal Connections, to RJ-45 Connectors



Signal Pairing: (1,2) Power I/O; (3,6) Program/Music or Alert Status; (4,5) Audio; (7,8) Control

Initial Adjustments, each channel

There are both Input and Output Controls with associated Indicators

When the Indicators are green the associated control is enabled

Only attempt adjustments if the associated indicator is lighted green!

Do each channel separately, Remote to Operator, then, Operator to Remote

Digital Rotary Switches (3dB/Step) are used to set Reach, *Microphone Gain*

The nominal Reach, *Microphone Gain* is ~6dB, or less, into limiting

Reach, *Microphone Gain* is always setup first

Initially, the Output level controls should be set to minimum (No Output)

Limiters Setup with a Microphone:

Always do first

Provide a normal input to the Microphone, or Line input

Insure the Microphone is Keyed, the indicator is Green

Advance the "Reach, *Microphone Gain*", from "0" until the Talk Level indicator just flashes red

If this setting is below "2" move the Gain Range Jumper to the "LOW" Position

Advance the "Reach, *Microphone Gain*" no more than two clicks (6dB into limiting)

If the Notch Filters are going to be used, move the Jumpers to the appropriate channel and do those adjustments next. Then you will need to redo the adjustment above of the effected channel again before proceeding

Speaker Level setup:

Assure there is an audio input

With normal audio input levels, with Inputs and outputs keyed (Both Indicators Green)

Set the Speaker Listening Level

Call Tone Level:

The Call Tone alert signal comes through the Operator's speaker. The call level is independent of the voice communications level, and may be set to any appropriate level, from fully off, to very loud.

Setup is accomplished by activating the 'Call Tone' by pushing the 'Call Switch'. Adjust the Call Tone alert to a suitable level.

VOX and Anti-VOX

When VOX is not used, the VOX Threshold must be set Fully CCW.

This disables VOX, and sets the timing for Push-to-Talk Operation.

Proper Speaker Microphone placement is necessary for VOX operation. The sound level from the operator speaking into the microphone should be greater than sound level at the microphone from the operator's speaker.

Do the Level and Reach adjustments first.
Note the setting of the Operator Speaker Level Control.

Setup is accomplished with the use of an Assistant (best) or a Radio, or other sound source. The sound source should be set for the normal expected input level at the Remote microphone.

Turn both the VOX and Anti VOX pots fully counterclockwise.

Turn the 'Operator Speaker Level' control fully Counter Counterclockwise, so that there is no sound coming from the Operator's speaker. Speak at a normal level and distance into the Operator microphone while advancing the VOX trimpot clockwise until the VOX indicator flashes red and the direction indicators reverse.

Reset the Operator Speaker Level control to its normal setting. The Intercom may intermittently switch directions; this is normal. Advance the Anti-VOX clockwise until the VOX indicator is green with brief flashes of red. The intercom should no longer be intermittently switching directions.

When you speak into the Operator Microphone at a normal level the direction should easily change.

Notch Filter Setup *Do after initial adjustments*

Notch Filters can greatly reduce feedback; however they cannot make up for poor acoustic isolation.

When shipped from the factory the Notch Filters not used.

The Notch Filter Configuration Jumpers must be moved to the appropriate channel first.

The factory settings are: LO, fully CCW, HI, Fully CW; the Notch Filters are essentially disabled.

There are two methods to adjust the Notch Filters; both entail forcing a feedback condition.

The one below is required if access to the jumpers is unavailable.

If the covers are off the IC-52B, the second method may be easier; see next page.

Method 1:

Move Speaker wires

The Notch Filters are adjusted by moving the Speaker wires so the channel with the Notch Filters is temporarily connected to the Room Speaker with the microphone to induce feedback.

There are two distinct primary resonance modes in most installations. One is room resonance; usually one mode is most prevalent, such as floor to ceiling resonance. This frequency is usually on the order of a few hundred cycles. The second mode is the distance of the microphone from a near object. This frequency is much higher near 1000Hz. The IC-52B incorporates two filters in tandem, one a low Band Filter 250Hz to 1000Hz, and the other a High band Filter 750Hz to 3000Hz. Adjust the Notch Filters one at a time. Increase the Speaker Level Control until feedback occurs.

Make a rough determination of the frequency (or measure the frequency with a counter).

If the feedback is below ~800Hz, adjust the 'Lo Notch' until feedback ceases. If the feedback is above ~800Hz, adjust the 'Hi Notch' until feedback ceases. (This is a 20-turn pot so it is best to start from one extreme, and slowly turn the pot in the other direction.

Increase the Speaker Level Control until feedback occurs again, if it is at the same frequency; try finely adjusting the same filter to see if the feedback can be eliminated. If the frequency is different, and in the other range not already tuned, repeat the steps above.

If only one Notch Filter is required, the other filter should be set at the extreme of its range.

Fully CCW (lowest frequency) for the LO filter, and fully CW (highest frequency) for the HI filter.

After the Notch Filters are adjusted, move the speaker wires and redo the initial adjustments.

Note:

Before making any adjustments assure there are audio Inputs and Outputs.

All the associated indicators must be lighted green.

Method 2: Jumper Settings

The **Notch Filters** are adjusted by moving the **Configuration Jumpers** so the **Audio** from the **microphone** temporarily appears at the **Speaker** in the same room, to induce **feedback**.



Temporary Jumper Setting for Notch Filter Setup

There are two distinct primary resonance modes in most installations. One is room resonance; usually one mode is most prevalent, such as floor to ceiling resonance. This frequency is usually on the order of a few hundred cycles. The second mode is the distance of the microphone from a near object. This frequency is much higher near 1000Hz. The IC-52B incorporates two filters in tandem, one a low Band Filter 250Hz to 1000Hz, and the other a High band Filter 750Hz to 3000Hz. Adjust the Notch Filters one at a time. Increase the Speaker Level Control until feedback occurs.

Make a rough determination of the frequency (or measure the frequency with a counter). If the feedback is below ~800Hz, adjust the 'Lo Notch' until feedback ceases. If the feedback is above ~800Hz, adjust the 'Hi Notch' until feedback ceases. This is a 20-turn pot so it is best to start from one extreme, and slowly turn the pot in the other direction

Increase the Speaker Level Control until feedback occurs again, if it is at the same frequency; try finely adjusting the same filter to see if the feedback can be eliminated. If the frequency is different, and in the other range not already tuned, repeat the steps above

If only one Notch Filter is required, the other filter should be set at the extreme of its range. Fully CCW (lowest frequency) for the LO filter, and fully CW (highest frequency) for the HI filter.

After the Notch Filters are adjusted, move the Jumpers to their correct position and redo the initial adjustments.

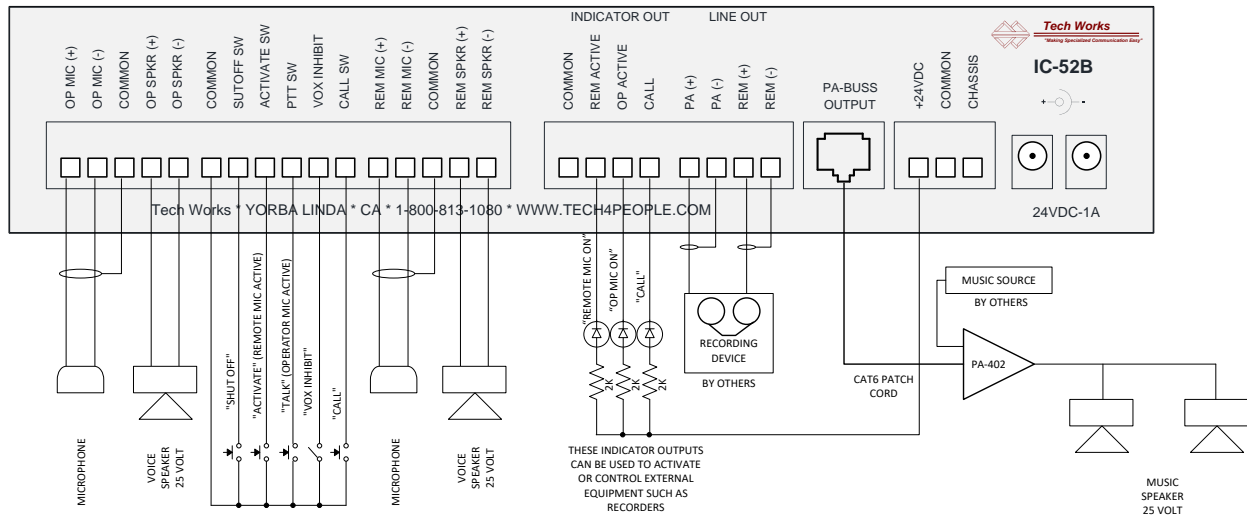
Note:

Before making any adjustments assure there are audio Inputs and Outputs

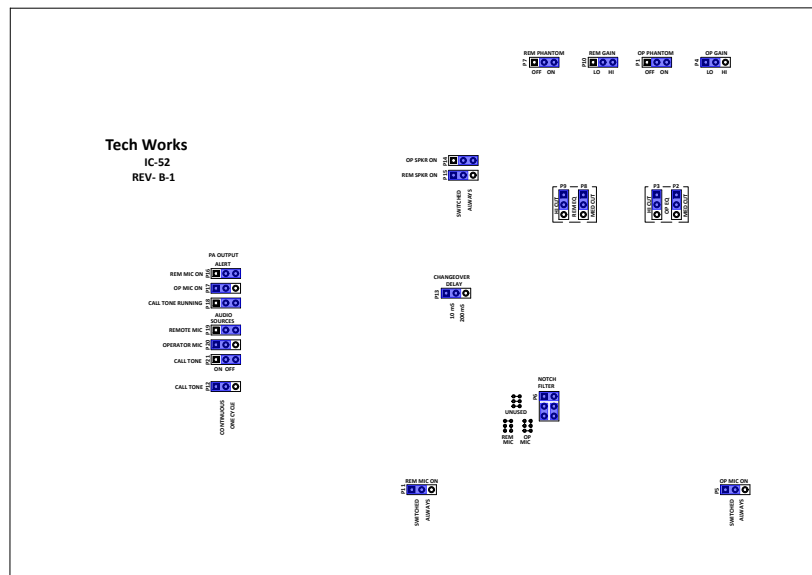
All the associated indicators must be lighted green

Application Templates

The Application Templates in this section cover some of the most common applications of the IC-52. They are meant to allow the user to easily configure a standard system. They are also useful as a guide for those configurations that are almost standard. The IC-52 is extremely versatile; almost any design can be accommodated. If you need additional help please contact a **Tech Works** applications engineer.



Default Jumper Settings

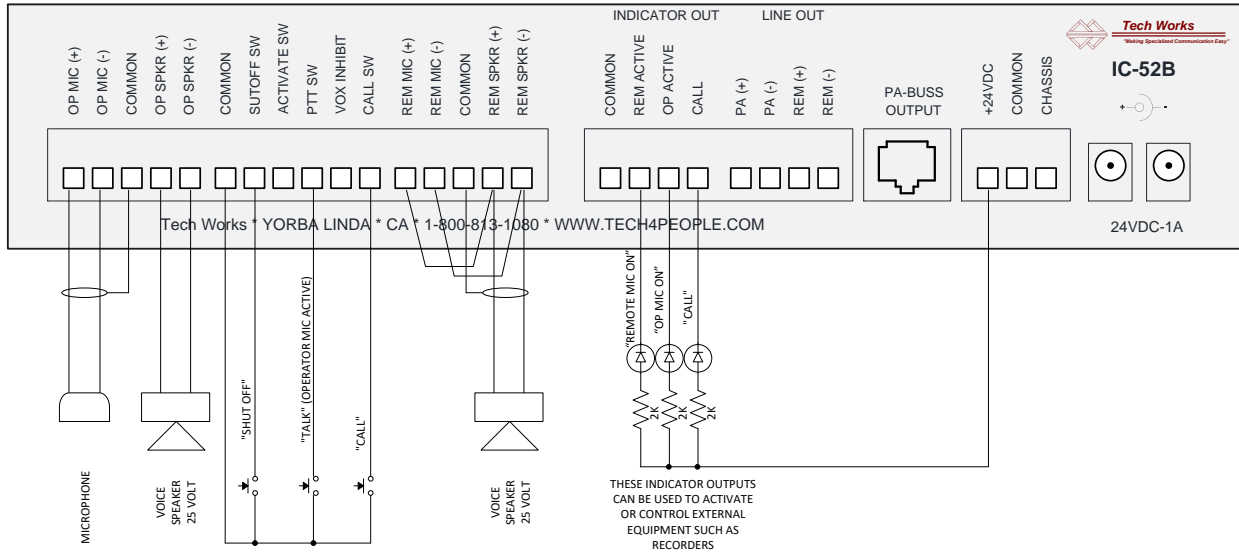


Setup:

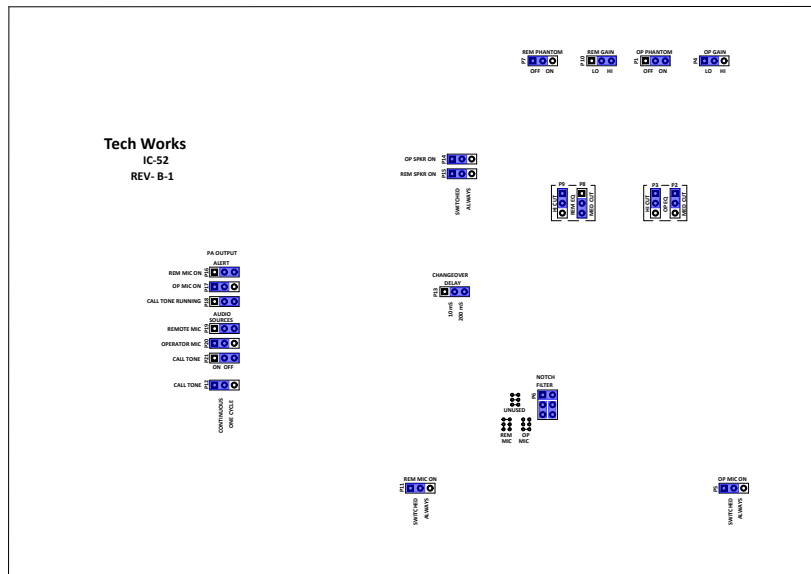
The normal setup procedures for the intercom should be done first. The chart below shows the setup for several typical applications. Place the jumpers as shown above for the functions shown above. Then follow the setup procedures detailed previously.

Ticket / Drive-Through Window, VOX application:

Ticket and Drive Through Windows include those applications such as the Movie Theaters, Bank Drive Through Tellers, Prison Inmate Personal Items Return, and even the local Landfill or Weigh Station. The IC-52 provides a flexible, quality communication between the customer and the service attendant.



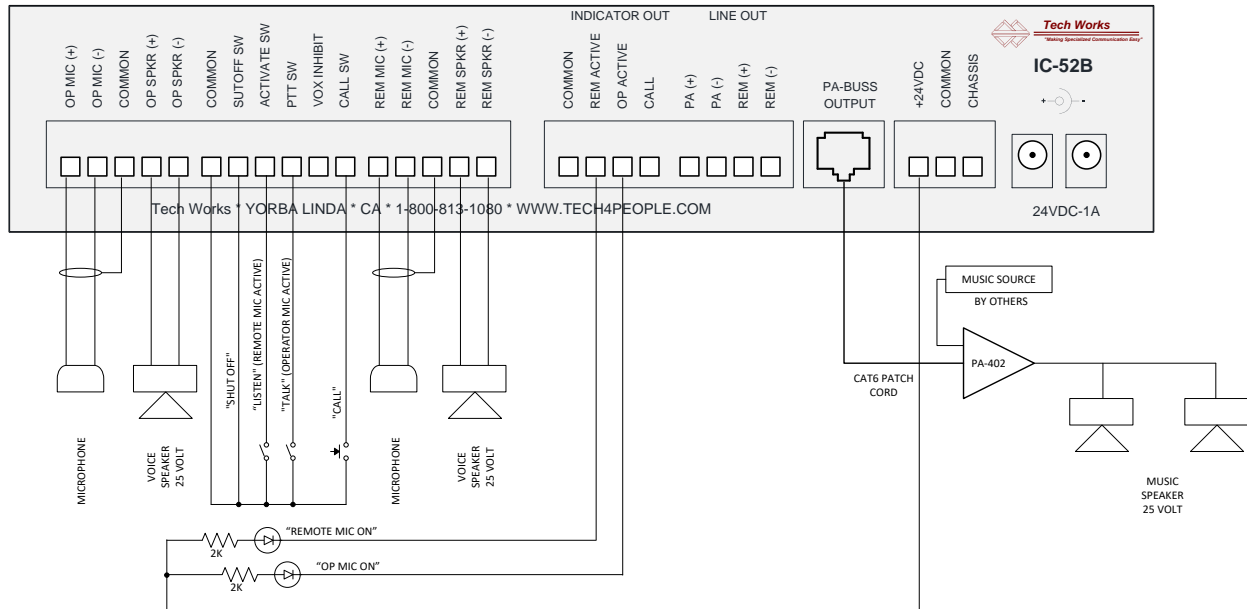
The typical Drive Through or Ticket Window Intercom configuration does not use a separate outside or Remote microphone. Simply jumper the REM MIC (+) to the REM SPKR (+) and the REM MIC (-) to the REM SPKR (-) and the standard 25 volt speaker becomes a weather and vandal resistant microphone.



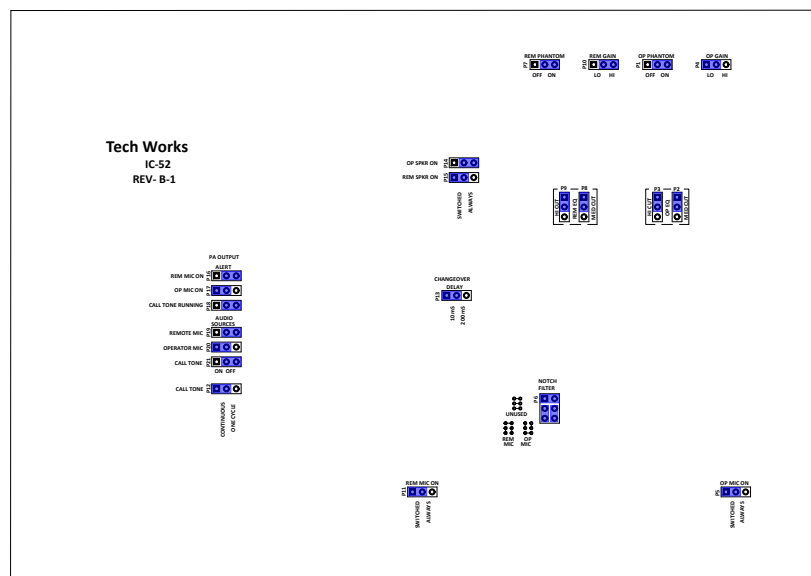
Jumper Settings must be changed from the default. Remove the top and move the “OP SPKR ON” jumper P14 to the “SWITCHED” or left position.

Procedure Room / Cath-Lab Application with Music Control Interface:

Today medical professionals expect high quality audio communications in a variety of facilities commonly called Cath Labs. This may include a variety of Operating suites and other applications such as infant monitoring that have nothing to do with Cardio Cath Labs.



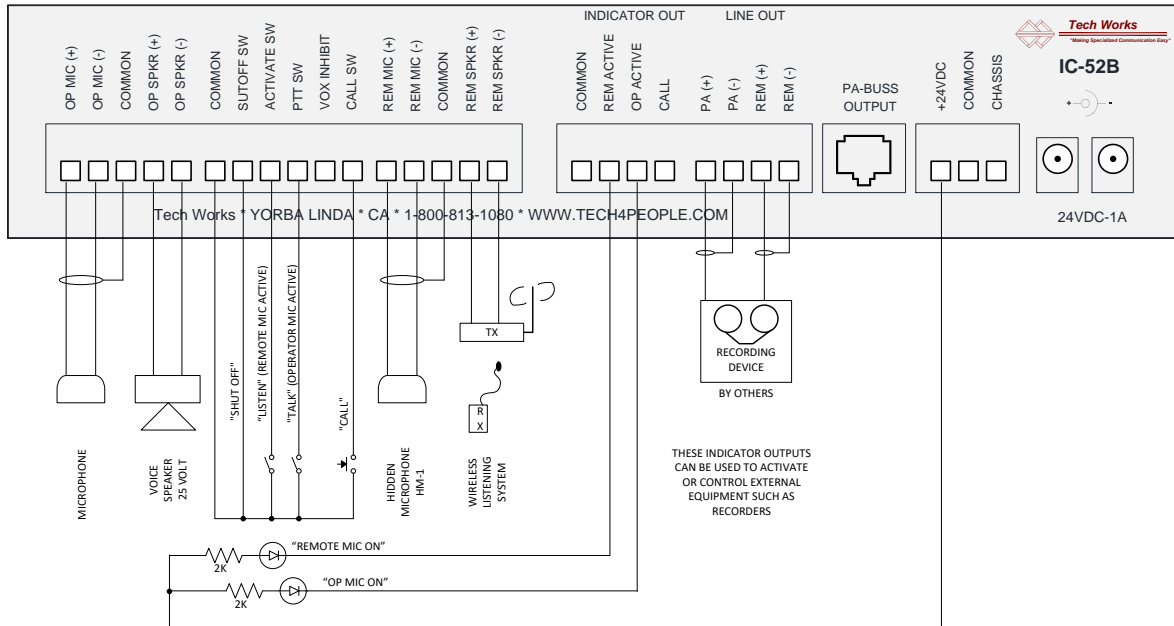
The typical medical Procedure Room Intercom configuration uses the special features specifically designed into the IC-52B such as Operator Listen Always On and Procedure Room Music Mute. Tech Works microphones include indicator lamps to tell the Operator when the intercom is in the Listen mode or when the Microphone is active for both Talk and Listen



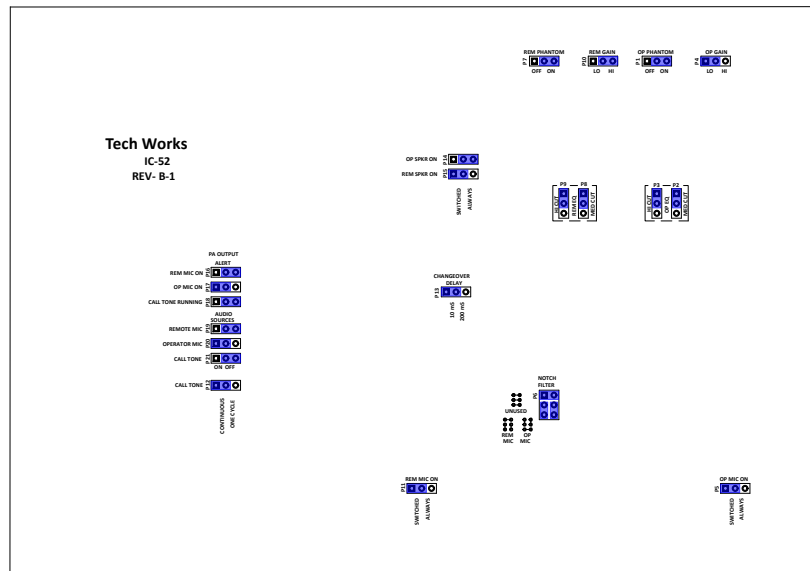
The IC-52B comes with the default jumper settings set for Procedure Room operation. You should not need to move any internal jumpers for proper operation.

Interview Application with Conversation Logging:

In security and detention there are often needs to interview a detainee and observe the conversation from an isolated room or even miles away over video link. Clear audio is critical to observing the interview and recording the conversation.



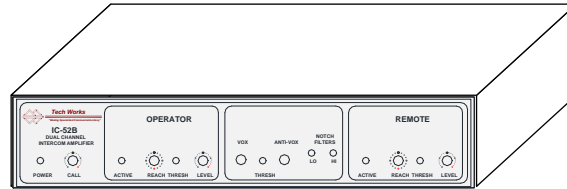
The IC-52B includes balanced, transformer isolated, recording outputs with automatic level control for line level audio to any professional recording equipment. The typical Interview Room configuration uses the features such as Selective Recording of what was said or what was heard depending on Jumper settings.



Shown with 'what was heard' configuration. This is the default jumper configuration.

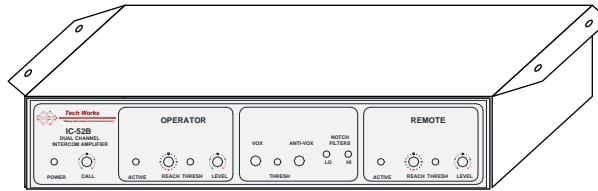
Mounting Options

Desk Mount

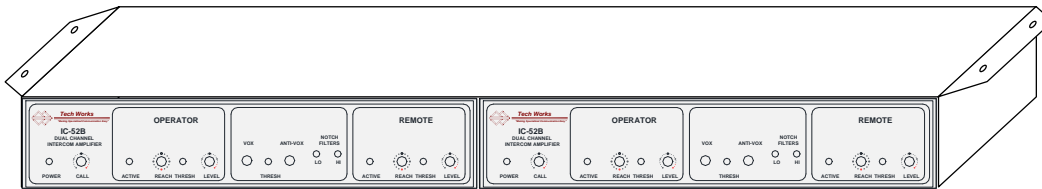


IC-52B-DM

Wall or Under Counter Mount

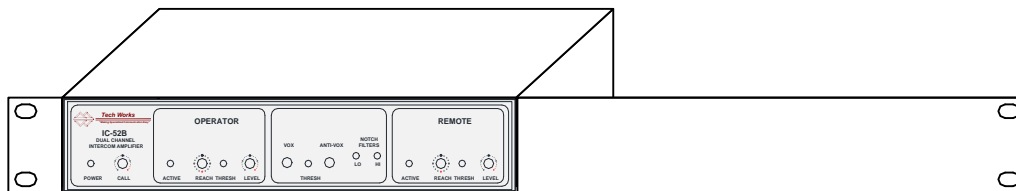


IC-52B-WM

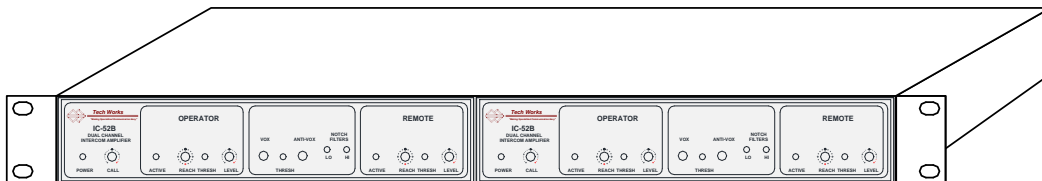


IC-52-WM2 Shown with an IC-52B and a companion IC-52B

IC-52-RM Rack Mount Option



IC-52-RM



IC-52-RM2 Shown with an IC-52B and a companion IC-52B mounted in a single rack space

Accessories



CS540 WIRELESS HEADSET - When the user requires mobility, privacy, and quality the CS540 does it all in a light weight rechargeable package with an integral over the ear mounting band. The CS540 requires the HS-1 adaptor sold separately.



PRO 45 HANGING MICROPHONE - In the procedure room area such as an operating table the PRO 45 is a high quality condenser microphone with cardioid pattern for excellent signal to noise and 25' cable included for easy connection.



PRO 47T -PLUS - MICROPHONE with a DESK STAND BASE and Two Switches. This is the perfect solution for the Cath Lab operator location. It is an attractive professional assembly complete with a Blue "Talk" and an Amber "Listen" switch to allow complete control of communication flow.



PRO42 - is a wide-range miniature condenser microphone with a hemi-cardioid polar pattern. It was designed for surface-mounted applications in high-quality sound reinforcement and other demanding sound pickup situations like procedure room boom arms.



HM-1 - Hidden Microphone - The HM-1 is an Omni-Directional Condenser Microphone with an electronically balanced preamp designed for interview pick up. This is a complete assembly including a 1-gang face plate and mounting hardware.



FS-1-PLUS - CALL / CONTROL SWITCHES - The FS-1-PLUS which includes a 15 foot cable with connectors and wall plate. Both offer a variety of hands free call in and control options.



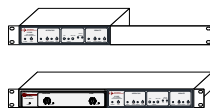
System 21 - is a complete cost, effective, assembly that includes a high-quality 8" loudspeaker, 25V transformer and perforated steel grill. This unit is made to "Blind Mount" in to hard ceilings.



System 5 CEILING MOUNT SPEAKER System- This is a complete assembly including a back box and mounting hardware. The System 5 comes complete with a 25 volt transformer or is available as the System 5-8 in 8 Ohm for Music playback.



IC52-WM WALL OR UNDER COUNTER MOUNT - The IC-52 is available with a top that provides 1" metal tabs on each side of the unit for easy attachment to either a wall or the underside of a counter. Also available in a side by side IC52-WM2 .



IC52-RM RACK MOUNT - IC-52 units can be rack mounted as either a single unit, dual units (side by side), or as companions with accessories like the SA-202 Stereo Amplifier. The rack mount is 1 rack unit (1-7/8") High by EIA 19" Wide.