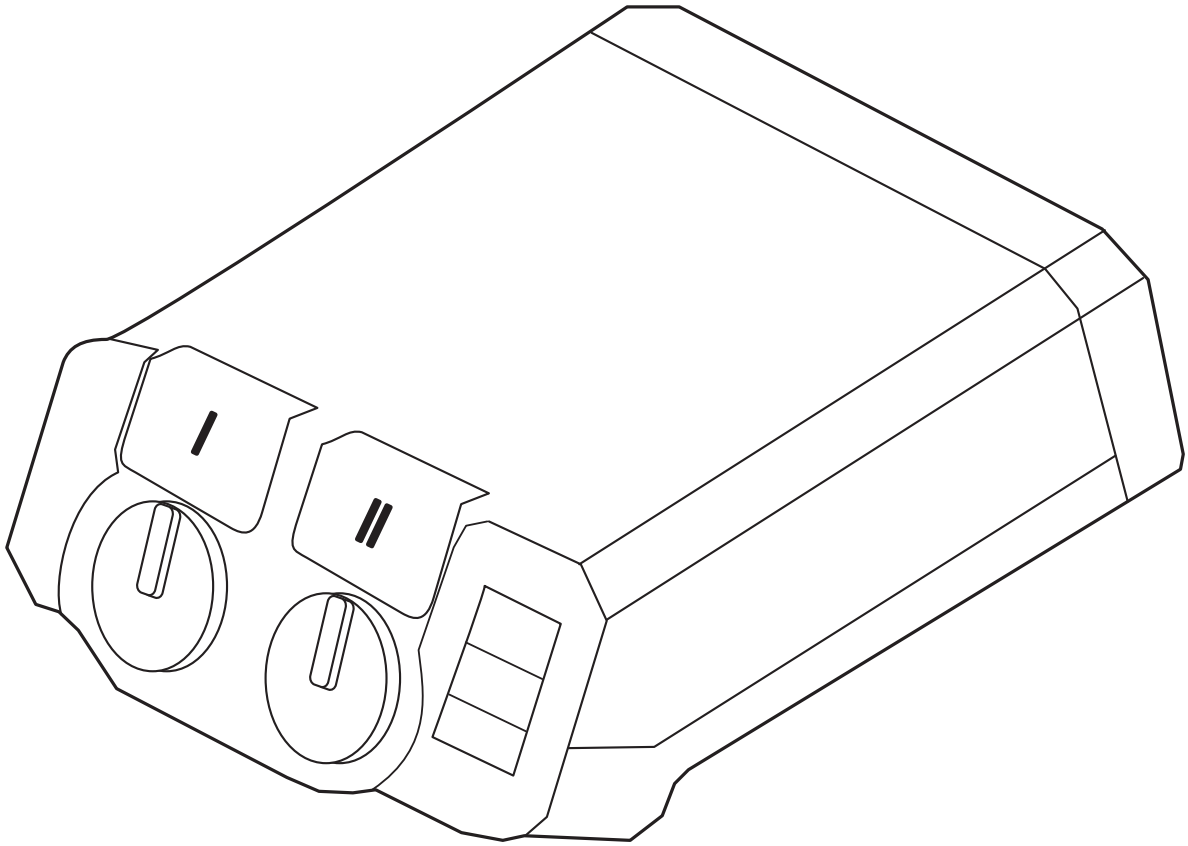
RTS

Innovating the Future of Global Communications

MODEL BP-325
Belt-pack Intercom Station
User Manual



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PROPRIETARY NOTICE

COPYRIGHT NOTICE

WARRANTY AND SERVICE INFORMATION

For warranty and service information, refer to the appropriate web site below:

RTS Intercoms ..... www.rtsintercoms.com/warranty
RTS Digital
RTSTW
AudioCom
RadioCom
Intercom Headsets

CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department
Bosch Security Systems, Inc.
www.telex.com

TECHNICAL QUESTIONS EMEA

Bosch Security Systems Technical Support EMEA
http://www.rtsintercoms.com/contact_main.php

DISCLAIMER

The manufacturer of the equipment described herein makes no expressed or implied warranty with respect to anything contained in this manual and shall not be held liable for any implied warranties of fitness for a particular application or for any indirect, special, or consequential damages. The information contained herein is subject to change without prior notice and shall not be construed as an expressed or implied commitment on the part of the manufacturer.

This package should include the following:

Qty	Description	Part No.
1	Final Assy, BP325, Gray	9010673800
	Final Assy, BP325, Rev 2.0	9010673820
	Final Assy, BP325, Black	9010673821
1	User Manual	9350569000
1	Warranty Statement	38110387
1	EMC & LVD Statement	38109675

 THE LIGHTNING FLASH AND ARROWHEAD WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF "DANGEROUS VOLTAGE" INSIDE THE PRODUCT.	 CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	 THE EXCLAMATION POINT WITHIN THE TRIANGLE IS A WARNING SIGN ALERTING YOU OF IMPORTANT INSTRUCTIONS ACCOMPANYING THE PRODUCT.
SEE MARKING ON BOTTOM/BACK OF PRODUCT.		

WARNING: APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

WARNING: THE MAIN POWER PLUG MUST REMAIN READILY OPERABLE.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE CENTER PIN OF THIS PLUG MUST BE MAINTAINED.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

WARNING: TO PREVENT INJURY, THIS APPARATUS MUST BE SECURELY ATTACHED TO THE FLOOR/WALL/RACK IN ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS.

~	This product is AC only.

CE	

WARNING: THIS IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE, IN WHICH CASE THE USER MAY BE REQUIRED TO TAKE ADEQUATE MEASURES.

Important Safety Instructions

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 radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9.Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10.Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11.Only use attachments/accessories specified by the manufacturer.

12.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.

13.Unplug this apparatus during lightning storms or when unused for long periods of time.

14.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.

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CHAPTER 1

Connections And Operation

This section describes operation of the BP325 as supplied from the factory. Use of an RTS power supply to power the intercom system is assumed. For options and use of an alternate power source (See “Programmable Options” on page 5. and See “Alternate Powering Methods” on page 7..

Connections

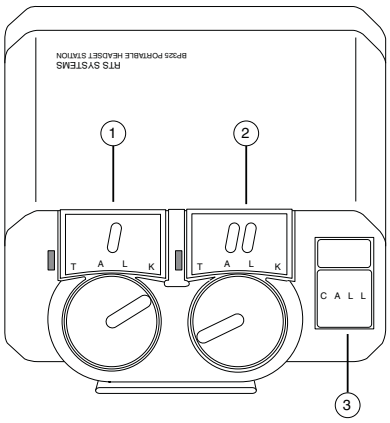
Headset

Connect a headset using one of the three headset connectors on the back panel. The MONO HEADSET and STEREO HEADSET connectors are for monaural or stereo dynamic-mic headsets. The CARB-MIC HEADSET connector is for a monaural carbon-mic headset. Refer to the specifications for pin-outs of these connectors if needed.

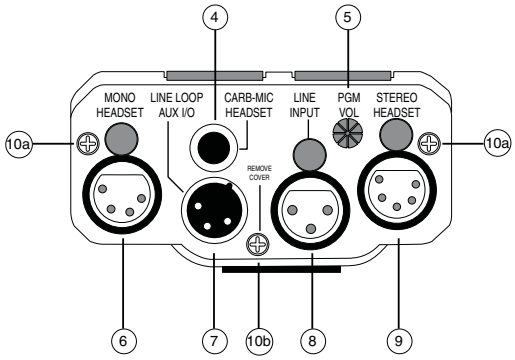
Intercom Channels

Connect the BP325 to the intercom system using the LINE INPUT connector on the back panel.

If desired, connect an additional intercom station to the intercom system using the LINE LOOP connector on the back panel.



1. ***Channel 1 talk button, indicator light and listen volume control.***
2. ***Channel 2 talk button, indicator light and listen volume control.***
3. ***Call button and indicator light.***
4. ***Carbon-mic headset jack. May also be used for external mic switch. See "Programable Options".***
5. ***Program volume control. Active only when using the line loop connector for optional program input. See "Programable Options".***
6. ***Monaural dynamic-mic headset jack.***
7. ***Intercom line loop connector for connection to additional intercom stations. May also be used for external program input, external mic switch, or a non-standard power source. See "Programable Options" and "Alternate Powering Methods".***
8. ***Intercom line connector. For connection to intercom system.***
9. ***Stereo dynamic-mic headset jack.***
10. ***Rear cover removal to set options: Loosen two screws (10a) and remove one screw (10b).***



Operation

1. Attach the BP325 to your belt or other convenient location using the belt clip on the rear panel.
2. Put on the headset and adjust the listen volume controls while listening to the intercom channels.
3. A TALK button may be activated in either of two ways:

   Momentary Mode: Press and hold the TALK button, then speak into the microphone. The green talk LED will remain lit while the TALK button is held. Release the TALK button when finished talking. The talk LED will turn off.

   Latching Mode for Hands-free Conversation: Tap the TALK button (do not press and hold). The green talk LED will turn on and remain on. When finished talking, tap the TALK button again. The talk LED will turn off.

4. Calling an intercom channel:
   a. Turn on the TALK button for the channel to be called (the green talk LED should be lit).
   b. Press and hold the CALL button. The red call LED will light while the button is pressed, indicating that a call signal is being sent. When a response is heard, release the CALL button and begin your conversation.
   c. Turn off the TALK button when finished with your conversation.
5. Receiving a call:
   a. When there is an incoming call on a channel, the red call LED will flash.
   b. If a talk LED is also flashing, this indicates that you need to activate that TALK button to begin your conversation.
   c. If no talk LED is flashing, this indicates that the TALK button is already on; simply begin your conversation.

6. Sending a Talk-off Signal: The BP325 can generate an inaudible signal which can be used to deactivate the talk buttons on other intercom stations connected to an intercom channel. (May be used with models BP325, MCE325 and MRT327). This feature is useful when an unattended intercom station has its microphone activated and is causing noise on an intercom channel. To send a talk-off signal:
    a. Turn off both TALK buttons on the BP325.
    b. Tap the CALL button three quick taps. The red call LED will turn on for about 2 seconds.
    c. While the red call LED is on, momentarily press the TALK button for the channel that has the TALK button to be turned off. This will send the signal and turn off the remote TALK button.

Programmable Options

Several internal option switches and jumpers can modify the belt pack's operation. The factory settings are summarized below. To change any of the factory settings, remove the rear cover screws as shown in Figure 1. Jumper and switch locations are shown on the label inside the rear cover.

Factory Settings

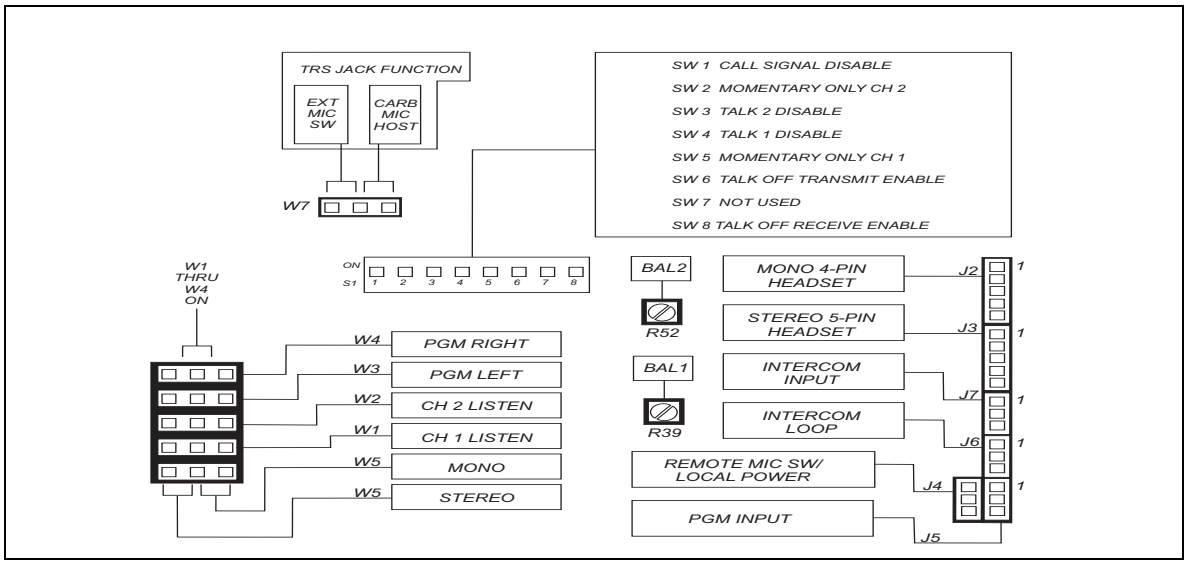


TABLE 1. BP-325 Unit Jumper Settings - This equipment complies with the requirements in Part 15 of the FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

Jumpers (W1-W7)

No. Setting	Description	Factory Default
W1	CH 1 Intercom Audio Listen[a]	ON
W2	CH 2 Intercom Audio Listen[a]	ON
W3	Program input to left headphone[b]	OFF
W4	Program input to right headphone[b]	OFF
W5	Stereo/Mono operation[c]	Stereo
W6	Not Used	
W7	CARB/MIC Jack Function[d]	Headset
	DIP Switches (S1)	
1	Call Signal Transmit Disable	OFF
2	Momentary Only Talk Button, CH2[e]	OFF
3	CH2 Talk Disable[f]	OFF
4	CH1 Talk Disable[f]	OFF
5	Momentary Only Talk Button, CH1[e]	OFF
6	Talk-off Transmit enable[g]	ON
7	Not Used	OFF
8	Talk-off Receive Enable[h] [i]	ON

a. Listen is factory set to be ON all the time on both channels. Setting W1 to the OFF position will disable intercom listen audio on channel 1 (usually the left headphone of a stereo headset). Setting W2 to the OFF position will disable intercom listen audio on channel 2 (usually the right headphone of a stereo headset). Listen disable could be used, for example, when you want to use the left side of a stereo headphone exclusively for program audio input and the right side for a single channel of intercom audio. In this case you would:

1. Set W1 to OFF to disable channel 1 intercom audio listen to the left headphone.

2. Set DIP switch 4 to ON to disable channel 1 talk.

3. Setup the left channel for program input.

b. To use program audio input:

1. Unplug the LINE LOOP connector from J6, and plug it into J5.

2. If you are using a stereo headset, set W3 and/or W4 to ON to route the program audio to the left headphone, right headphone or both headphones. If you are using a mono headset, set both W3 and W4 to ON.

3. Connect the program source to the LINE LOOP connector using an XLR-3-32 female receptacle wired as follows

Pin 1 - Common

Pin 2 - Program input high

Pin 3 - Program input low

4. Adjust program input volume using the PGM VOL control on the back panel.

c. W5 applies to a stereo dynamic-mic headset connected to the STEREO HEADSET jack. With W5 set in the stereo position, intercom channel 1 will be heard in the left headphone only, and channel 2 will be heard only in the right. In the mono position, both intercom channels (and program audio if connected) will be heard in both headphones. If you are using monaural headphones connected to the MONO HEADSET jack, W5 may be left in the stereo position.

d. The CARB-MIC connector may be used to connect either a headset or an external mic ON/OFF switch. (If you are using a carbon-mic headset, but still wish to use an external mic switch, the LINE LOOP connector may alternatively be used for the mic switch. See note X, below.) To use the CARB-MIC connector for an external mic ON/OFF switch:

1. Place jumper W7 in the “EXT MIC SW” position.

2. Use a stereo phone plug to connect the external switch to the CARB-MIC HEADSET jack:

Tip: Remote Mic Switch Normal-open Contact

Ring: No connection

Sleeve: Remote Mic Switch Common

3. To use the external mic switch, first set one or both TALK buttons to the latched-on position. Then, press the external mic switched turn the TALK button(s) ON. Release the mic switch to turn the TALK button(s) OFF. Note, the TALK buttons may still be turned ON or OFF from the BP-325; however, the external mic switch will not work unless the TALK buttons are first turned ON at the BP-325

e. As supplied, the TALK buttons feature a dual-action momentary/latching operation: press and hold for momentary talk, then release when finished; or tap to latch ON for hands-free talk, and tap again to turn OFF when finished talking. If desired, the latching operation may be defeated, and the TALK buttons may be operated in momentary mode only.

f. Setting DIP switch 3 to the ON position will disable the channel 2 TALK button. Setting DIP switch 4 to the ON position will disable the channel 1 TALK button.

g. As supplied, the BP-325 can generate an inaudible talk-off signal which can be used to deactivate the talk buttons on other intercom stations connected to an intercom channel. To turn this feature OFF, set DIP switch 6 to the OFF position.

h. As supplied, other intercom stations can deactivate the TALK buttons on the BP-325 using the Talk-Off feature from their intercom stations. To disable this feature, set DIP switch 8 in the OFF position.

i. Using the LINE LOOP connector for an external mic ON/OFF switch:

1. Unplug the LINE LOOP connector from J6 on the circuit board, and plug it into J4.

2. Connect the external mic switch to the LINE LOOP connector using an SLR-3-32 female receptacle wired as follows:

Pin 1: Remote Mic Switch Common

Pin 2: No Connection

Pin 3: Remote Mic Switch Normal-open Contact

3. To use the external mic switch, first set one or both TALK buttons to the latched-ON position. Then, press the external mic switch to turn ON the TALK button(s). Release the mic switch to turn off the TALK button(s). Note, the TALK buttons may still be turned ON or OFF from the BP-325; however, the external mic switch will not work unless the TALK buttons are first turned on at the BP-325.

Sidetone Adjustment

You can change the level of your own voice heard in your headphones while talking on an intercom channel. Adjust R39 to change your voice level when talking on channel 1. Adjust R52 to change your voice level when talking on channel 2.

Alternate Powering Methods

General

When using an RTS power supply to power the intercom system, power is carried to the BP325 on pin 2 of the LINE INPUT connector along with the channel 1 audio. Pin 1 is the DC return. The unique design of RTS power supplies permits power to be carried on an audio channel. RTS power supplies also provide the proper terminating impedance for each intercom channel. If a non-RTS power supply is used, there are two alternatives for connecting power and intercom audio.

The first method uses channel 1 only to connect the non-RTS power supply. Audio on channel 1 will be unusable as the power supply will look like a short circuit at audio frequencies. Channel 2, however, will still be operational. Also, channel 2 will require a terminating impedance, since this is not supplied by the non-RTS power supply.

The second method allows the use of a non-RTS power supply while still maintaining two audio channels. This method requires an additional wire to the belt pack, and the LINE LOOP connector will not be usable for connecting another intercom station. Also, each intercom channel must be properly terminated. The two methods are discussed below.

Method One: One Channel Operation With A Non-RTS Power Supply

Using an XLR-3-32 female connector, connect the external power source and the channel terminating components to the LINE INPUT connector as
shown in Figure 2.

If desired, the LINE LOOP connector may be used to connect power and audio to an additional intercom station.

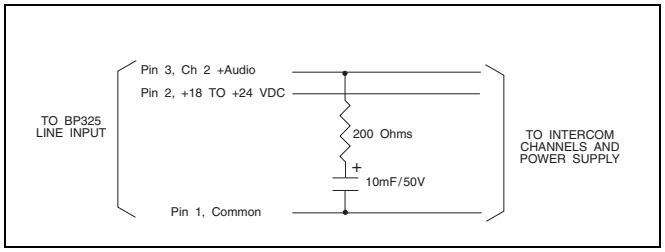


FIGURE 1. LINE INPUT Connector Wiring for 1-Channel Operation with Non-RTS Power Supply

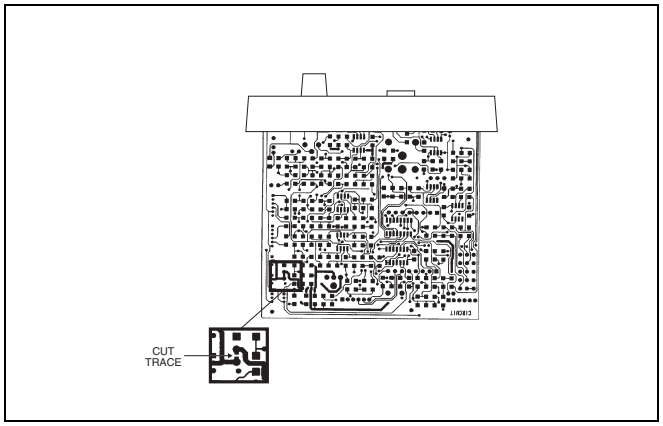


FIGURE 2. Bottom View of the Main Circuit Board

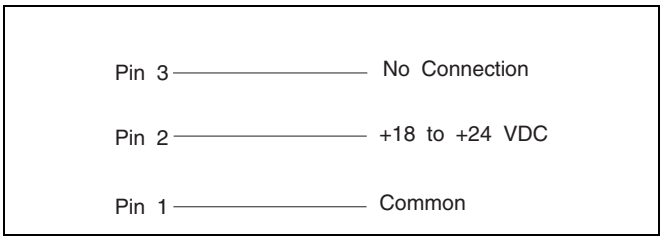


FIGURE 3. LINE LOOP Connector Wiring for 2-Channel Operation with Non-RTS Power Supply

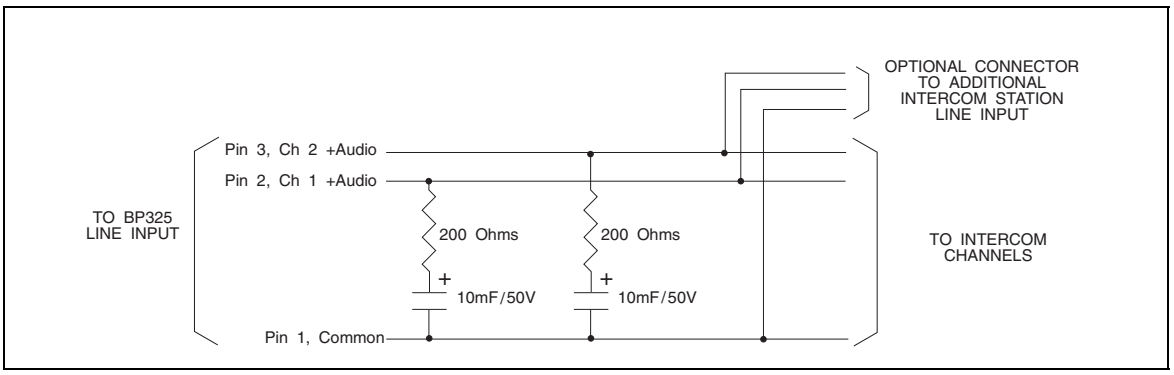


FIGURE 4. LINE INPUT Connector Wiring for 2-Channel Operation with Non-RTS Power Supply

Method Two: Two Channel Operation With A Non-RTS Power Supply

1. Referring to Figure 1, remove all three screws (10a and 10b) on the back connector panel of the BP325. Remove the rear cover/belt clip assembly.
2. There are two connectors that connect the main circuit board to the front panel circuit board. Pry the tabs on these two connectors to disconnect them. Remove the back connector panel and main circuit board from the belt pack.
3. On the bottom side of the main circuit board, cut the trace as shown in Figure 3.
4. Reassemble the main circuit board and rear connector panel to the belt pack.

Note: If the rear connector panel becomes separated from the main circuit board at any time, make sure that the shaft of the program volume control knob inserts into the program volume control potentiometer on the main circuit board during reassembly.

5. Referring to the label on the inside of the rear cover, unplug the LINE LOOP connector from J6 and plug it into J4.
6. Reassemble the rear cover.
7. Using an XLR-3-32 female receptacle, connect the external power source to the LINE LOOP connector as shown in Figure 4. Connect +DC to pin 2 and connect power supply common to pin 1.
8. Using an XLR-3-32 male plug, connect intercom channels and termination components as shown in Figure 5. Plug this connector into the LINE INPUT jack of the BP325.

CHAPTER 2

Specifications

Specifications

Power Requirements

Input DC Voltage

+18 to +33 VDC, 30 VDC nominal (standard RTS line), 45 to 85 mA

Environmental Requirements

Storage:

-4° F to 158° F (-20° C to 70° C); 0% to 95% humidity, non-condensing

Operating:

32° F to 122° F (0° C to 50° C); 0% to 95% humidity, non-condensing

Dimensions

5.00 in. H x 3.75 in. W x 2.05 in. D
(127 mm x 96.3 mm x 52.1 mm)

Weight

0.66 lbs (300 g)

Impedance Across Intercom Line

10,000 Ω typical

Noise Contribution to 200 Ω Intercom Line

-75 dBu

Headphone Amplifier

Maximum Voltage Gain: 30dB

Frequency Response: 100 Hz to 8 kHz, +/-3 dB

Headphone Impedance: 50 to 600 Ω

Output Power: 150 mW/150 Ω

Output Voltage Level: 8 volt peak-to-peak

Microphone Preamplifier

Maximum Voltage Gain: 54 dB

Frequency Response: 100 Hz to 8 kHz,+/-3 dB

Input Impedance: >1k Ω

Limiter Range: 30 dB

Program Input

Maximum Input Level: +20 dBu

Nominal Input Level: -10 to +8 dBu

Frequency Response: 100 Hz to 12 kHz,+/-3 dB

Monaural Dynamic-mic Headset Connector

XLR-4-31 receptacle (J13)

Pin 1 - Microphone low

Pin 2 - Microphone high

Pin 3 - Common

Pin 4 - Headphone high

Stereo Dynamic-mic Headset Connector

XLR-5-31 receptacle (J14)

Pin 1 - Microphone low

Pin 2 - Microphone high

Pin 3 - Common

Pin 4 - Headphone left high

Pin 5 - Headphone right high

Carbon-mic Headset Connector (J1) - 1/4 inch, 3-conductor Phone Jack

Used for Headset

Tip - Carbon microphone

Ring - Headphone

Sleeve - Common

Used for Mic Switch

Tip - Remote switch normal-open contact

Ring - No connection

Sleeve - Remote switch common

Intercom Line Input Connector (J11)

XLR-3-31 female receptacle:

Pin 1 - Common

Pin 2 - +30 VDC In & audio

Pin 3 - Channel 2 intercom audio

Used for Program Input:

Pin 1 - Common

Pin 2 - Program input high

Pin 3 - Program input low

Used for Remote Mic Switch and/or External Power

Pin 1 - Common

Pin 2 - +22 to +24 VDC

Pin 3 - Remote switch normal-open contact

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