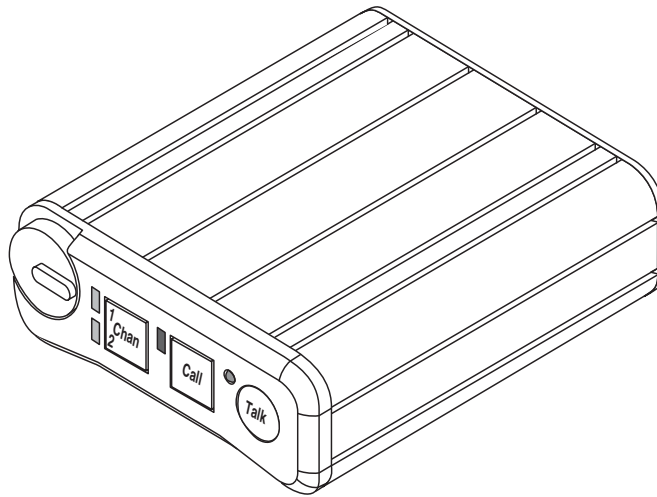


Telex

Operating Instructions



**BP-2000/BP-1000
Belt Packs
Audiocom® Intercom
System**

GENERAL

The Audiocom® BP-2000 and BP-1000 are microprocessor controlled one- and two-channel intercom belt packs. An internal switch and jumper setting allows the units to be used with Clear-Com® components, if desired. Other internal switch and jumper settings allow the unit to be uniquely configured to the operator's requirements.

FCC STATEMENT

This equipment uses, and can radiate radio frequency energy that may cause interference to radio communications if not installed in accordance with this manual. The equipment has been tested and found to comply with the limits of a Class A computing device pursuant to Subpart B, Part 15 of FCC Rules which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference which the user (at his own expense) will be required to correct.



This product meets the Electromagnetic Compatibility Directive, 89/336/EEC.

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Burnsville, Minnesota 55337
®Clear-Com is a registered trademark of Clear-Com Intercom Systems

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OPERATION

SYSTEM POWER

The BP-2000 belt pack receives power externally, in one of two ways:

- Via the intercom channel (similar to the BP-1000)
- Via the local-power (pin 2) of the intercom channel connector

The BP-1000 belt pack receives power externally, via the intercom channel.

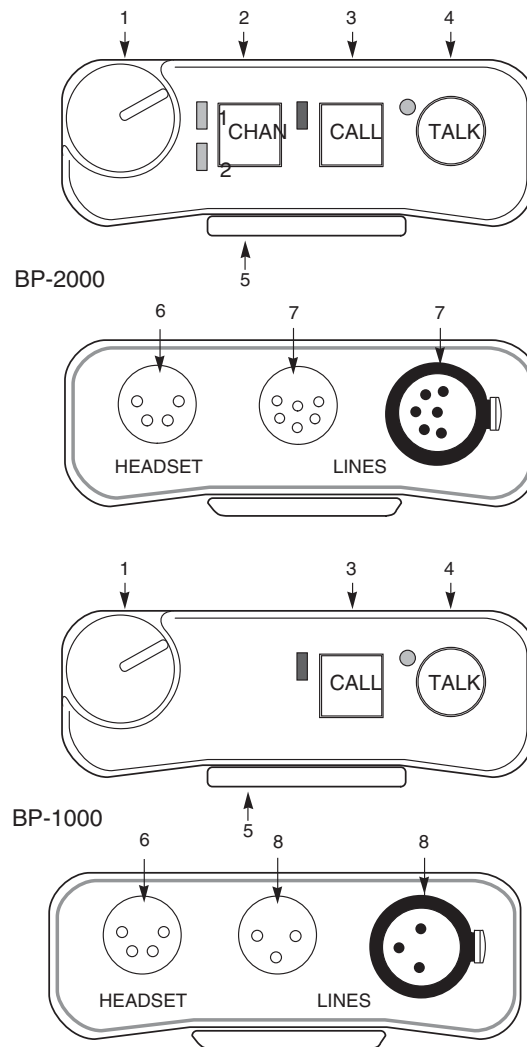
Both the BP-2000 and BP-1000 will pass system power through to subsequent belt packs that are “daisy chained” together.

INITIAL BP-2000/BP-1000 SETUP

The channel termination is initially set for balanced operation, which is compatible with other Audiocom® equipment. If the unit is going to be connected to Clear-Com equipment, one switch and several jumpers must be changed as described in the section on Clear-Com Setup in this manual.

The headset microphone type is initially set for single-ended dynamic operation. To change the microphone type to balanced dynamic, refer to Table 2 for the position of J15.

To change the headset microphone to an electret type, refer to Table 2 in this manual for the position of switch SW1. If the type requirement of a headset microphone is unknown, the recommended setting is single-ended dynamic.



**Figure 1. BP-2000 & BP-1000
Connections and Controls**

EXTERNAL CONNECTIONS & CONTROLS

NOTE: The numbers refer to the callouts in Figure 1.

1. Volume Control

Use this control to adjust the headset listen level.

2. *Chan* Button and Indicators

The *Chan* button (only on the BP-2000) allows the user to select which intercom channel is active. The yellow indicator next to the *1* or *2* lights to show the active channel. Press the *Chan* button to change the channel selection, the yellow indicator for that channel will light.

3. *Call* Button and Indicator

The Call function allows the user to send or receive signals to other devices on the intercom channel selected. The *Call* button operates in two ways:

Call receive:

When there is an incoming call signal, the indicator is red. (If Audible Call Alert is enabled, incoming calls will cause beeps in the headset.) On the BP-2000, calls can be received on the selected channel only.

Call send:

To send a call signal to all stations on a channel, press and hold the *Call* button until a verbal response is received. The indicator will glow red. On the BP-2000, calls can be sent on the selected channel only.

4. *Talk* Button and Indicator

The *Talk* button activates the headset microphone and operates in two ways:

Latched Mode:

Tap the button once to talk. The indicator will glow green. Tap the button again when finished with a conversation.

Momentary Mode:

Press and hold the button to talk momentarily. Release the button when finished talking.

NOTE: On the BP-2000, if no headset is connected when the *Talk* button is pressed, the *Talk* button will have the same function as the *Chan* button.

5. Sidetone Control

When using a headset, this control adjusts your own voice level heard in the headphones. To adjust the level, tap the *Talk* button once to turn on the headset microphone. Then, use a small flat-blade screwdriver to increase or decrease your voice level while talking into the microphone. (This control is accessible by removing one screw of belt clip.)

6. Headset Connector

This connector accepts a four-wire Telex® boom-microphone headset.

7. Intercom Channel Connectors

On the BP-2000, intercom channels are connected via a pair of 6-pin connectors (one male and one female). The male and female connectors are wired together in parallel, providing a “loop through” at each connector pin. Use one connector to connect to the intercom channel. Use the other connector to “daisy chain” a cable to the next belt pack or other station on the channel.

Local Power Input (BP-2000 only)

Normally the BP-2000 is powered from the intercom system and will turn on with the intercom system. The BP-2000 belt pack may also be powered from an optional power supply (14-30 VDC) connected between pin 2 (+) and pin 1 (-) of the intercom channel connector.

8.

@PARAINDENT = Intercom Channel Connectors

On the BP-1000, the intercom channel is connected via a pair of 3-pin connectors (one male and one female). The male and female connectors are wired together in parallel, providing a “loop through” at each connector pin. Use one connector to connect to the intercom channel. Use the other connector to “daisy chain” a cable to the next belt pack or other station on the channel.

OPERATING MODES

The microprocessor within the BP-2000/BP-1000 controls four modes of operation that affects the Microphone Kill and Audible Call Alert features.

TABLE 1. OPERATING MODES

MODE (beeps)	MIC KILL	AUDIBLE CALL ALERT
1	Disabled	Disabled
2 (Default)	Enabled	Disabled
3	Disabled	Enabled
4	Enabled	Enabled

Changing Modes of Operation:

Perform the following steps to change the mode of operation.

1. Both the *Talk* and *Call* indicators should be off.

2. Press and hold the *Talk* key, then press and hold the *Call* key, then release both keys. The *Call* indicator should now glow red.

(The number of beeps heard in the headset indicates the current mode of operation.)

3. Press the *Call* key to change to the next mode of operation. Each press of the *Call* key will cause the BP-2000/BP-1000 to change to the next mode of operation.
4. When the desired mode is reached, press the *Talk* key to select that mode and exit the mode changing function.

(Beeps will be heard in the headset when the mode changing function is exited. The number of beeps heard indicates the selected mode of operation.)

NOTE: Each time the intercom system power is turned on, the beltpack will reset to the default mode of operation (Mode 2).

INTERNAL SWITCHES, JUMPERS AND ADJUSTMENTS

There are several internal switches, jumpers and an adjustment that affect operation. These are described below. To gain access to the switches, jumpers and the adjustment, disconnect all power and line connections. Remove two screws from the top of each side and two screws from bottom of each side. Switch, jumper and adjustment locations are shown in Figure 2.

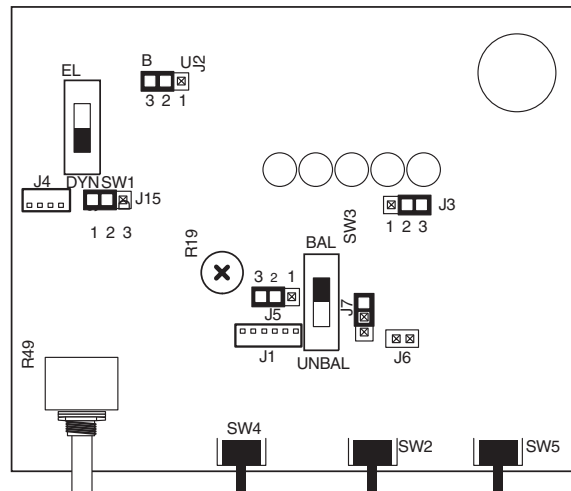


Figure 2. Internal Switches, Jumpers and Adjustments

NOTE: Figure 2 shows a BP-2000 with the switches and jumpers in their factory default positions (referenced in Table 2).

The SIDETONE adjustment is also accessible behind the screw that holds the belt clip (callout 5 in Figure 1).

The functions of the internal switches and jumpers are described in Table 2.

NOTE: On the BP-1000, jumper J3 must always have pins 2 and 3 shorted.

Side Tone Adjustment (R19)

The side tone adjustment is accessible either internally (refer to Figure 2) or by removing the belt clip mounting screw (callout 5 in Figure 1).

To adjust the level of your own voice heard in the headphones, tap the *Talk* button once to turn on the headset microphone. Then, use a small flat-blade screwdriver to increase or decrease your voice level while talking into the microphone.

Clear-Com Setup

Make the following switch and jumper changes when the belt pack is used with Clear-Com equipment:

BP-2000

1. SW3 must be placed in the UNBAL position.
2. J2 must have pins 1 and 2 shorted (U position).
3. J5 jumper must be removed and placed on J6.
4. J6 must have pins 1 and 2 shorted (using jumper from J5).
5. J7 must have pins 1 and 2 shorted.

BP-1000

1. SW3 must be placed in the UNBAL position.
2. J2 must have pins 1 and 2 shorted (U position).
3. J3, J5 must have pins 2 and 3 shorted at all times.

TABLE 2. INTERNAL SWITCHES AND JUMPERS

JUMPER/ SWITCH NUMBER	JUMPER OR SWITCH FUNCTION	DEFAULT SETTING
SW1 ^	Electret / Dynamic Microphone Select (Must be set to Dynamic when J15 functions are desired)	Dynamic
J15 ^ ^ ^	Balanced/ Single-ended Dynamic Mic (SW1 must be set to Dynamic) Single-ended Mic: Pins 1&2 shorted Balanced Mic: Pins 2&3 shorted	Pins 1&2 shorted
J3 ^ ^ ^	Power Select Channel One Power: Pins 2&3 shorted (On BP-1000, pins 2&3 always shorted) Channel Two Power: Pins 1&2 shorted	
J5 ^ ^ ^ ^	Power Select Channel One Power: Pins 2&3 shorted (On BP-1000, Pins 2&3 always shorted.) Channel Two Power: Pins 1&2 shorted (Must be set for same channel as J3 for proper power operation in Audiocom® mode on BP-2000) (Must be used in conjunction with SW3)	Pins 2&3 shorted
SW3 ^ ^	Clear-Com / Audiocom® Operation Unbalanced / Balanced Line (Must be used in conjunction with J2, J5, J6, and J7)	
J2 ^ ^ ^	Clear-Com / Audiocom® Operation Pins 1&2 shorted: UNBAL (Clear-Com) Pins 2&3 shorted: BAL (Audiocom®) (Must be used in conjunction with SW3)	Pins 2&3 shorted
J6 ^ ^ ^	DC Call Detect (Clear-Com operation only, not used in Audiocom® mode) BP-2000 only Disabled: No pins jumpered Enabled: Pins 1&2 shorted (To enable, use jumper from J5)	
J7 ^ ^	DC Call Detect (Clear-Com operation only, not used in Audiocom® mode) BP-2000 only Disabled: No pins jumpered Enabled: Pins 1&2 shorted	Jumper on one pin only

CONNECTOR PIN CONFIGURATIONS

Headset Connector

Type: XLR-4M (callout 6 in Figure 1)

Pin 1	Headset microphone low
Pin 2	Headset microphone high
Pin 3	Headphone high
Pin 4	Headphone low

Intercom Channel Connectors

BP-1000

Type: One XLR-3M and XLR-3F pair (callout 8 in Figure 1)

J2, Audiocom® Mode (Internal switch SW3 and jumpers J5, J6 and J7 set to BAL position)

Pin 1	Common
Pin 2	Intercom audio low and +24 VDC input
Pin 3	Intercom audio high and +24 VDC input

J2, Clear-Com Mode (Internal switch SW3 and jumpers J5, J6 and J7 set to UNBAL position)

Pin 1	Common
Pin 2	+30 VDC input
Pin 3	Intercom audio/call signal

BP-2000

Type: One XLR-6M and XLR-6F pair (callout 7 in Figure 1)

Audiocom® Mode (Internal switch SW3 and jumpers J2, J5, J6 and J7 set to BAL position)

- Pin 1 Common
- Pin 2 Local power (+24 VDC)
- Pin 3 Channel A intercom audio low and +24 VDC input
- Pin 4 Channel A intercom audio high and +24 VDC input
- Pin 5 Channel B intercom audio low and +24 VDC input
- Pin 6 Channel B intercom audio high and +24 VDC input

Clear-Com Mode (Internal switch SW3 and jumpers J2, J5, J6 and J7 set to UNBAL position)

- Pin 1 Common
- Pin 2 Local power (14 to 30 VDC)
- Pin 3 Channel A +30 VDC input
- Pin 4 Channel A intercom audio/call signal
- Pin 5 Channel B +30 VDC input
- Pin 6 Channel B intercom audio/call signal

SPECIFICATIONS

GENERAL:

Power Requirements:

Channel supplied: 24 VDC nominal, 45 to 70 mA

Local-power: (BP-2000 only) 24 VDC nominal
(14 to 30 VDC), 45 to 70 mA

Environmental Requirements:

Storage: -20°C to 80°C; 0% to 95% humidity,
non-condensing

Operating: -15°C to 60°C; 0% to 95% humidity,
non-condensing

Dimensions:

5.0" (127 mm) H x 3.5" (88.9 mm) W x 1.8" (45.7 mm) D

Weight:

1.5 pounds (0.68 kg)

INTERFACE REQUIREMENTS:

Headset:

50 to 200 Ω dynamic microphone

150 to 600 Ω headphones

Balanced Intercom Channel:

Output Level: 1 Vrms nominal

Input Impedance: 300 Ω \pm 5%

Bridging Impedance: greater than 10,000 Ω

Call Signalling:

Send: 20 kHz \pm 100 Hz, 0.5 Vrms \pm 10%

Receive: 20 kHz \pm 800 Hz, 100 mVrms

Mic-Off Frequency:

Detect: 24 kHz \pm 800 Hz, 100 mVrms

Noise Contribution: less than -60 dB on the line

Unbalanced Intercom Channel:

Output Level: 200 mVrms $\pm 10\%$

Input Impedance: $150\Omega \pm 5\%$

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

Call Signalling:

Send: 12 ± 3 VDC

Receive: 4 VDC minimum

HEADPHONE AMPLIFIER:

Voltage Gain:

27 ± 3 dB from the line

Maximum Output:

60 mW into 150Ω

Frequency Response:

200 Hz to 8 kHz with no more than 4 dB deviation

Audible Alert:

1 kHz, at the headset

Total Harmonic Distortion:

Less than 2% at 50 mW from the line

Sidetone:

20 dB minimum range, adjustable

DYNAMIC MICROPHONE AMPLIFIER:

Voltage Gain:

Mic to Channel; 45 \pm 3 dB, before limiting

Mic to Headphone; adjustable, 65 dB range into 150 Ω

Frequency Response:

200 Hz to 8 kHz +1/-3dB

Total Harmonic Distortion:

Less than 1% at Channel output at 1 kHz

ELECTRET MICROPHONE AMPLIFIER:

Voltage Gain:

Mic to Channel; 27 \pm 3 dB, before limiting

Mic to Headphone; adjustable, 45 dB \pm 10% into 150 Ω

Frequency Response:

200 Hz to 8 kHz +1/-3dB

Total Harmonic Distortion:

Less than 1% at Channel output

FACTORY SERVICE

All equipment returned for repair must be accompanied by documentation stating your return address, telephone number and proof of date of purchase, along with a description of the problem. In lieu of this, you may obtain a Return Authorization form from our Customer Service Department.

Customer Service Department
Telex Communications, Inc.
12000 Portland Avenue South
Burnsville, Minnesota 55337 U.S.A.
Telephone: (952) 884-4051
(Collect calls not accepted)

Return equipment to:

Service Department
Telex Communications, Inc.
West 1st Street
Blue Earth, Minnesota 56013 U.S.A.

Warranty Repairs - If in warranty, no charge will be made for the repairs. Equipment being returned for warranty repair must be sent prepaid and will be returned prepaid.

Non-Warranty Repairs - Equipment that is not under warranty must be sent prepaid to Telex. If requested, an estimate of repair costs will be issued prior to service. Once your approval for repair, and repair of equipment is completed, the equipment will be returned on a collect basis. Collect charges may be avoided by sending a signed check for payment in full along with your signed estimate approval form (the estimate includes the shipping charge).

APPENDIX A OPTIONAL FOOTBALL MODIFICATIONS

GENERAL DESCRIPTION

In Audiocom® Intercom Systems, the Mic-Kill feature is used to turn off any activated microphones on a selected channel. The Mic-Kill feature is activated when the beltpack receives a 24 kHz signal from the channel. In some applications the Mic-Kill and Call signal features are not desired and need to be disabled.

ELIMINATING MIC-KILL AND CALL SIGNAL

CAUTION

TO PREVENT DAMAGE TO THE EQUIPMENT, THESE MODIFICATIONS SHOULD ONLY BE MADE BY QUALIFIED TECHNICIANS.

If desired, the Mic-Kill and Call signal features can be disabled in the BP-2000/BP-1000 by removing a surface-mounted capacitor from the printed circuit board. Perform the following:

1. Before making changes to the printed circuit board, disconnect all power and line connections from the beltpack.
2. Refer to Figure 3 and locate C38 on the underside of the printed circuit board.
3. Remove capacitor C38 from the printed circuit board.

RESTORING MIC-KILL AND CALL SIGNAL

To restore the Mic-Kill and Call signal features, replace C38 with Telex® part number 102879-218, 1500 pF, 50V capacitor.

