Electro-Voice®

Operating Instructions

RE-1

User Guide

TELEX®

Table of Contents

Section 1
Quick Set-Up

Quick Set-up: Receiver

1. Do not connect the receiver to any other equipment yet!

2. Connect the two antennas to the receiver.

3. Plug the power supply into the back of the receiver and into an outlet

4. Press the POWER switch. Display will light up, show information and software revision numbers for about 3 seconds and then display the main operating screen.

5. Press the MENU button twice to display the ClearScan™ option screen.

6. With the CLEARSCAN ALL line indicated press SET.

7. ClearScan™ returns the clearest group. Press SET again.

8. ClearScan™ returns the clearest channel in that group. Press SET again.

9. The display will return to the main operating screen with the clearest channel in the clearest group assigned.

10. Turn the receiver off and connect the mixer or other audio system to the receiver XLR Mic Level Connector or the ¼ inch Line Level Jack.

11. Set the audio mixer or other system input level to minimum.

12. Press the Power switch button in again.

Receiver "Quick Set-up" is complete.

Quick set-up: Transmitter

1. With the Power Switch on the transmitter OFF, install a fresh alkaline battery into the transmitter.

2. Place the transmitter Power Switch to the ON position.

3. The Red Low Battery Light near the display will flash on and then off. The display will also come on briefly, displaying battery level.

4. The screen will stop at the GP (Group) and CH (Channel) screen. Press the SET button once and the Group number will flash.

5. Use the up and down arrows to change the Group number to match the channel number displayed on the receiver. Press SET and the Channel Number will flash.

6. Use the up and down arrow buttons to change the Channel to match the receiver. Press Set and flashing stops. The channel is now set.

7. If you are using a bodypack transmitter, plug the microphone into the transmitter connector. If using a guitar, place the Instrument/Mic switch under the battery door in the Instrument position and plug the cord into the transmitter and guitar.

Transmitter "Quick Set-up" is complete.

Quick set-up: System Operation

1. With the transmitter and receiver on, monitor the CSR-1000 Receiver main display screen. Note that the RF (1-100) Bar graph should indicate near the 100 mark. The AF Bar should show very little, if any, indication until you talk or sing into the microphone. Adjust the transmitter gain control *if necessary* to cause the AF Bar Graph to peak near -6 to -3 but not over +3 for best performance.

2. Set the mixer or other system gain.

3. Talk or sing into the microphone or play the instrument at a normal volume. You should hear audio coming out of the system.

4. If using the unbalanced 1/4" output, you may have to adjust the gain (via the control next to the connector on the back panel) to match the level found when singing or playing with a wired connection.

"Quick Set-up" is now complete.

Please enjoy your RE-1 system.

Section 2
System Description

The CSR-1000 Wireless Microphone system combines frequency agility and ease of use like no other. The CSR-1000 transmitters and receivers operate over a 24 MHz bandwidth in the UHF portion of the spectrum.

The high quality audio circuitry and advanced Radio Frequency (RF) signal processing offer broadcast quality signal-to-noise and audio clarity.

System Features Include:

- Advanced ClearScan™ technology for selecting clear channels and compatible groups
- 960 Radio Channels, user programmable or factory installed
- LCD Displays for ease of viewing
- Patented DSP Phase Diversity System
- USB Port for downloading software enhancements in the receiver
- Adjustable Unbalanced Line Level 1/4 inch output jack
- Fixed balanced Microphone Level XLR output jack
- Front Panel Power ON/OFF Switch
- Quadruple Tuned Ceramic Resonator front end for superior interference rejection
- SAW Filter 1st I.F for out of band rejection
- Triple ceramic filters in 2nd I.F for adjacent channel rejection
- Double Tuned Quadrature circuit for low audio distortion
- Permanent Flash Memory for frequency/system storage.
- Front Panel Software Control of Squelch settings
- Double Squelch (Amplitude and Tone) system prevents false squelch
- Lockout feature to prevent accidental channel changes
- Sound Check mode to speed walk testing and provide tangible results
- "Smart" battery feature in the transmitter means there is no wrong orientation
- Interchangeable heads on the handheld transmitter
- Over-molded Warmgrip™ handle on the handheld transmitter
- Cast magnesium case on the bodypack transmitter

Section 3

Detailed Component Descriptions

CSR-1000 Receiver

CSR-1000 Receiver Controls, Connectors and Indicators

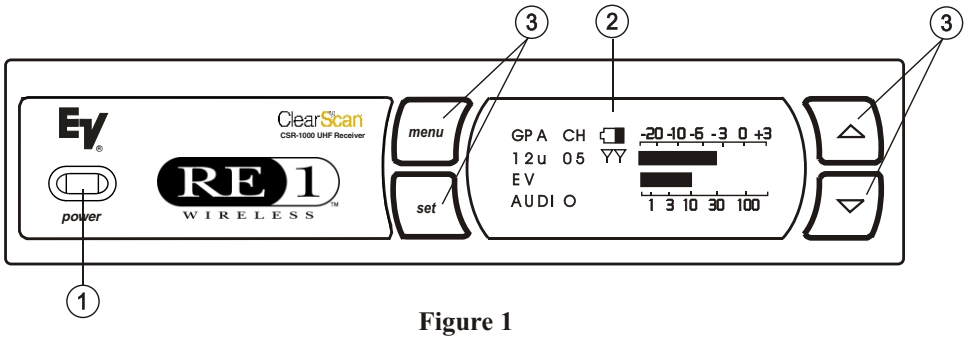


Figure 1
CSR-1000 Front Panel

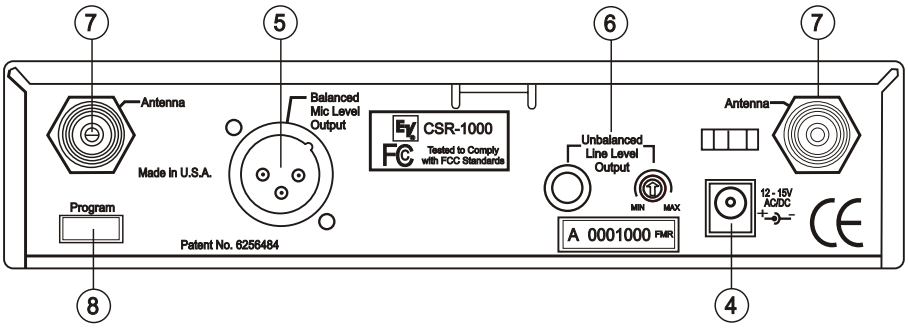


Figure 2
CSR-1000 Back Panel

1. **Power ON/OFF**

2. **Graphical Display**
   - **a.** Channel Display
   - **b.** Battery Strength Indicator
   - **c.** Diversity Indicator
   - **d.** RF Strength of Signal Indicator
   - **e.** Audio Level Indicator

3. **Display Control Buttons (Menu/Set/Up/Down)**

4. **Power Connector**

5. **Balanced Mic Level Audio Output**

6. **Unbalanced Line Level Audio Output Connector with Level Adjustment**

7. **TNC Antenna Input Connectors**

8. **USB Program Connector**

Receiver Setup and Operation

1. Place the receiver and antennas where there is a clear line of sight to the area where the transmitter will be used. Rotate the antennas to separate them by 90 degrees.

2. **Connect the power supply** cord to the receiver. Plug the power supply into an AC outlet. Turn the receiver on and confirm that it is ON by checking the main display screen. The display will show the company logo, software and channel map revision levels and then display the main screen with the last channel set.

Caution: Please make sure the AC power supply is the correct voltage for your local requirements before it is plugged into the wall.

3. **Manual Channel Change.** From the main display screen press the MENU button once. The Channel Change screen is now displayed. Press SET: the group number should be flashing. The Up and DOWN buttons allow you to scroll through the 10 factory groups and 10 user definable groups. When the group you desire is displayed, press SET to select that group and the Channel Number will start flashing. Scroll to the desired channel, press SET to select. Pressing MENU anytime before pressing SET negates any changes made since the last SET. Once the desired group and channel are displayed (but not flashing) press MENU twice to return to the main display screen.

4. **Frequency Assignment (User Defined Groups Only).** With a User Group* selected in step three, press MENU once and the frequency assignment screen is displayed. Press SET and the Frequency Number will flash. Use UP/DOWN to scroll in 25 kHz steps to the desired frequency. With the desired frequency displayed press SET. The Channel Number will begin to flash. use the UP/DOWN keys to select another Channel in this group you want to assign a frequency, press SET to select and the Frequency Number will flash. Repeat until all desired Channels are assigned a frequency. Press MENU to stop editing. Press MENU twice to return to the main display screen.

   HINT: Holding in the arrow key will increase the speed of the scroll. Just release and press again for fine control.

* User Defined Groups start at Group #11 and display a "u" after the group number.

5. **Advanced ClearScan™** : This feature automates the process of finding a clear group of inter-modulation free channels and the clearest channels within those groups. To use ClearScan™, from the main display screen push Menu twice (or 3 times if a user defined group is being used) to go to the Options Screen. Use the UP/DOWN keys and SET to select the version of ClearScan™, you wish to run.

   a. **ClearScan™ All**. This program scans all of the groups (factory and user) and returns a list of groups ranked by the number of free channels. Once ClearScan™ All has run, the screen will display the clearest group with the open channels in that group. You can scroll through the other ranked groups using UP/DOWN. When you have the group you want, press SET to run ClearScan™ on that group. The display will now show the group with the Channels ranked by clearness. You can scroll through the channels with UP/DOWN, once the desired channel is flashing, press SET to select and the display will go to the main display.

   NOTE: Groups 7, 8, 9, and 10 have 16 channels and are marked with an N (7N). These groups require the transmitters to be in the NORMAL transmit power setting to work together. The N groups will always be displayed after groups 1-6 and any user defined groups no matter how many channels are free. If you need to use more than 12 systems at one time, scroll down to the N groups and use the clearest group with Normal transmit power.

   b. **ClearScan™ Group XX.** This program will scan the group currently selected, which is useful for multi-system setup. With ClearScanTM All run for the first unit of a multi-system installation, the clearest group has been selected. For each system added, leave all previously selected channel transmitters on, using Step 3 select the current group, select ClearScan™ Group and press SET. The display will show the group and ranked remaining clear channels. Select the desired channel with UP/DOWN or simply press SET for the first channel. The channel will be selected and return to the main display. Repeat until all systems are set up or all clear channels are full.

   c. **ClearScan™ Band**. This program selects and ranks the clearest 16 frequencies in the 24 MHz bandwidth regardless of groups, channels or previous coordination. This feature is useful for selecting one clear channel in a very dirty RF environment. From the Options screen, select ClearScan™ Band and press SET, this scan will run until SET is pressed again so it can be used to evaluate a site over an hour, day or even a week. The program displays Group 21S with the clearest open frequencies in the band assigned channels (up to 16). These frequencies will remain assigned to this group until ClearScan™ Band is run again.

Caution: Unlike the factory assigned groups, the channels in 21S are not coordinated. If more than one channel from group 21S is used, the combination must be walk tested with all transmitters on before use.

6. **Change Lock-Out**. By pressing and holding the UP and DOWN arrow keys together for 3 seconds, the SET key is disabled. The MENU button still allows different screens to be displayed but no settings can be changed and ClearScan™ will not run. To reactivate the SET key simply press and hold the UP and DOWN keys again for 3 seconds. This feature can be useful when the receiver is in a location where unauthorized personnel have access to the receiver.

7. For set up, make sure the mixer or other system input used for the CSR-1000 is muted or turned down to a minimum level.

8. Plug an audio cable (not supplied) into the 3 pin XLR or 1/4 inch output of the CSR-1000.

    a. **NOTE:** The XLR connector is the preferred connection since the output is balanced and will be more immune to noise for longer runs of cable although either can be used with good results. If the 1/4 inch connector is used, adjust the output level on the back panel to 12 o'clock (midway in the range) to start and adjust later if necessary.

Now refer ahead to transmitter setup and return to step 9 when that is completed.

9. With the transmitter on, speak into the microphone or play the instrument. Turn up the level on the mixer or amplifier until you are able to hear the desired signal. If no audio is present, repeat setup and refer to the troubleshooting section.

    NOTE: If the 1/4 inch output is used, it may be necessary to adjust the receiver output until the volume level from the wireless system approximates the level of an equivalent wired microphone/instrument.

10. Walk Test the expected area of use to check for coverage. The SOUND CHECK screen is designed to aid this test. From the main display screen, press MENU twice (3 times in user groups) to display the options screen. Scroll down to Sound Check and press set. This Sound Check Screen will be displayed:

    a. **The peak hold audio meter** allows you to set the transmitter gain as high as possible for the application which maximizes the signal to noise ratio. Sing, yell or play the instrument at the loudest desired volume and adjust the gain on the meter.

    b. **The squelch break counter** will tell you if you are pushing the range or may have some interference problems to contend with. Ideally this count would be zero for the desired performance area. If there are several squelch breaks while walking the area, adjust antenna placement or squelch as in step 11 and retest. Pressing [UP] will turn on an audible tone that will sound each time the count is incremented. This tone can be sent to the monitors or PA so the tester can hear when a drop occurs and mark the location on the stage. Pressing [DOWN] turns the tone off.

    c. **The high/low RF meter** will tell you if you have adequate coverage in the performance area. If the RF level drops significantly during a walk of the desired area, reposition the antennas, adjust the squelch or change the channel and retest.

CAUTION: MUTE OR TURN DOWN THE MIXER OR AUDIO AMPLIFIERS ETC. BEFORE ADJUSTING THE SQUELCH. OPEN (MINIMUM) SQUELCH CAN RESULT IN LOUD WHITE NOISE OVER THE AUDIO SYSTEM.

11. **Squelch Adjustment** - The squelch setting can be used to maximize range or immunity to noise. Turn the transmitter off and from the receiver Options screen select Squelch Adjustment and press SET. The current squelch setting will be displayed, the setting bar will flash and "Tones Off" will be displayed (the tone coded portion of the squelch must be off in order to notice any changes in the amplitude squelch setting). Adjust the squelch using the UP/DOWN keys and walk test the unit. Maximum squelch (all the way right) maximizes noise immunity but limits the range. Minimum squelch (all the way left) will maximize the range but allow more noise to break through the squelch.

Handheld Transmitter CSH-1000

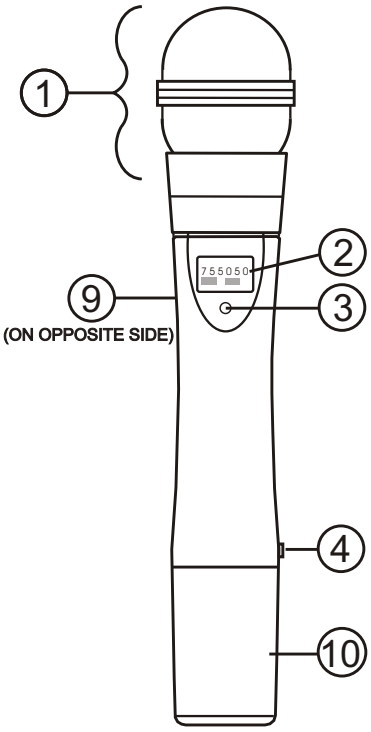


Figure 3
Handheld Transmitter

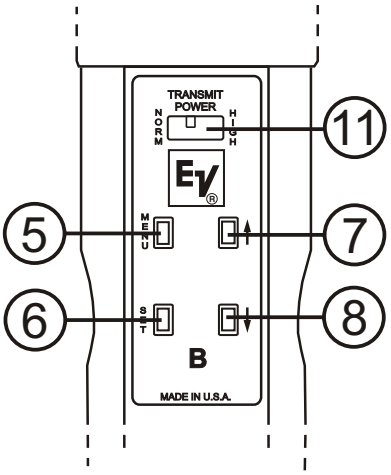


Figure 4
Transmitter Controls

CSH-1000 Controls, Connectors and Indicators

1. Microphone Head - Interchangeable

2. Main Display - LCD (Channel, Frequency or Battery Level Indication)

3. Low Battery LED - Lights when battery is low

4. Power On/Off Switch

5. Menu Switch

6. Set Switch

7. Channel/Frequency Up Switch

8. Channel/Frequency Down Switch

9. Microphone Gain

10. Battery Cover - Screw type

11. Transmit RF Power Switch

Handheld Transmitter Setup and Operation

1. Insert Battery. Remove the battery compartment cover by unscrewing it completely. Insert a 9V battery, terminal end first into the battery compartment.

NOTE: The CSH-1000 unique design allows the battery to be inserted and used regardless of the positive and negative terminal position.

2. With battery compartment still open, turn the unit so you can see the display and the control panel. Turn the unit on by sliding the power switch forward to the on position. The low battery LED will light for a second and the display will show the battery level, then the Group and Channel numbers.

3. **Change the group and channel numbers** to match those displayed on the receiver by pressing SET. The Group number will flash and can be changed with the UP/DOWN keys. Once the desired group number is showing, press SET to select and the Channel number will flash. Select the Channel and press SET again, the flashing will stop and the channel is now set.

4. **Change Lock-Out.** By pressing and holding the UP and DOWN arrow keys together for 5 seconds, the SET key is disabled. The MENU button still allows different screens to be displayed. To reactivate the SET key, simply press and hold the UP and DOWN keys again for 5 seconds.

5. **Verify reception** With the transmitter and receiver on and matching Group and Channel, the main receiver display should be indicating a RF signal on the bar graph. Speak into the microphone and the Audio Meter bar graph should indicate audio signal presence. If the level meters do not show reception, make sure the channels are matching and refer to the trouble shooting section.

6. **Adjustment of the transmitter audio gain - If necessary** The transmitter audio gain is factory set at 1/3 of maximum range, which should be suitable for most applications. For loud or soft speakers/singers a gain adjustment may be necessary. Have the speaker or singer use the microphone in a normal performance level voice. The Audio Meter in the main receiver display screen should show peaks around the -3dB level. If the meter peaks all the way to the right or well below the -3dB level, adjust the transmitter audio gain.

   To adjust the transmitter gain, gently insert the provided screwdriver (or other 3/32 in. screwdriver) into the adjustment hole opposite the display screen. Turn lightly until the screwdriver tip goes into the adjustment level control. Gently turn counterclockwise until the control stops (the microphone output is at minimum but not off). Slowly turn the gain control up (clockwise) while speaking/singing into the microphone and the audio meter shows peaks around -3 dB.

NOTE: Operating with the transmitter audio gain set as high as possible (without distortion or peaks all the way to the right end of the meter) will result in the best performance and highest signal to noise ratio.

7. **Transmitting Power Adjustment (if necessary).** The CSH-1000 transmitter has two radio transmit power settings. It is factory set in the NORM position, which will maximize the number of simultaneous users and limit interference with other wireless devices. Switching to HIGH power will maximize range for outdoor and single user applications.

8. **Interchangeable Microphone Head.** To remove the head, grasp the handheld transmitter body in one hand and the ballscreen assembly in the other. Turn the ballscreen counter clockwise and unscrew until the head is detached. See specifications and accessories for more information on available heads.

9. **Test Performance.** Go back to Section 3. Receiver Setup and Operation - Step 9 to complete system set up and test.

Bodypack Transmitter

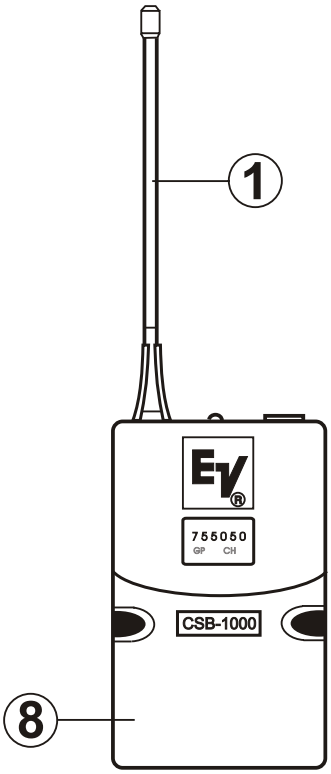


Figure 5
Bodypack Transmitter

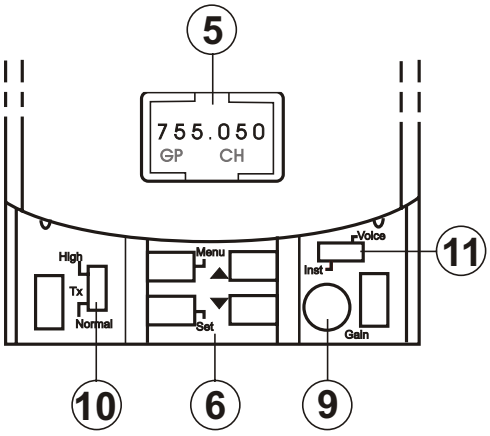


Figure 6
Control View

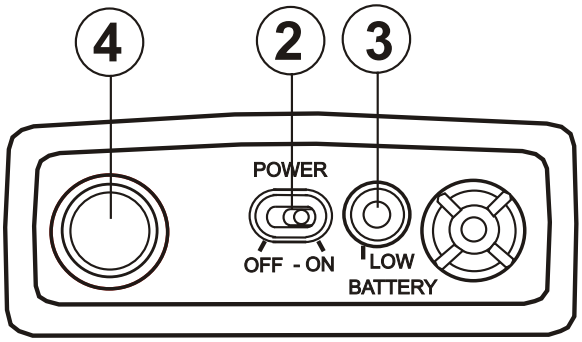


Figure 7
Top View

CSH-1000 Controls, Connectors, and Indicators

1. Antenna - flexible 1/4 wave antenna removable (replacement part see Section 8)

2. Power On/Off Switch

3. Low Battery LED Indicator

4. TA4 Audio Connector

5. LCD Display (Channel, Frequency or Battery Level Indication)

6. Display Control Buttons (Menu/Set/Up/Down)

7. Belt Clip (Removable and Detachable) not shown

8. 9V Battery Compartment

9. Audio Gain Adjustment

10. Transmitting RF Power Switch

11. Instrument/Voice Switch

Bodypack Transmitter Setup and Operation

1. **Install Antenna.** The CSB-1000 is equipped with a detachable antenna. Screw in the antenna included with the system. See the accessories section at the end of this manual for information on optional antennas for the CSB-1000.

2. **Insert Battery.** Pinch the battery door tabs inward and pull the door open. Insert a 9V battery as indicated by the +/- in the holder. (**NOTE:** The CSB-1000 unique design allows the battery to be inserted and used regardless of the positive and negative terminal position, the indicators are there for reference only).

3. With battery compartment still open, turn the unit on with Power switch on the top panel. The low battery LED will light for a second and the display will show the battery level, then the Group and Channel numbers.

4. **Change the group and channel numbers** to match those displayed on the receiver by pressing SET. The Group number will flash and can be changed with the UP/DOWN keys. Once the desired Group number is showing, press SET to select and the Channel number will flash. Select the Channel and press SET again, the flashing will stop and the channel is now set.

5. **Change Lock-Out**. By pressing and holding the UP and DOWN arrow keys together for 5 seconds, the SET key is disabled. The MENU button still allows different screens to be displayed. To reactivate the SET key, simply press and hold the UP and DOWN keys again for 5 seconds.

6. **Verify reception.** With the transmitter and receiver on and matching Group and Channel, the main receiver display should be indicating a RF signal on the bar graph. If the level meter does not show reception, make sure the channels are matching and refer to the trouble shooting section.

7. **Attach the Microphone or Instrument.**

   Microphone: Plug the TA4 end of the microphone cable into the top panel of the CSB-1000. Speak into the microphone and the Audio Meter bar graph should indicate audio signal presence.

   Instrument Switch the Voice/Instrument Switch to instrument. Plug in the instrument TA4 cable. Play the instrument and the Audio Meter bar graph on the receiver should indicate audio signal presence.

8. **Adjustment of the Transmitter Audio Gain - (if necessary).** The transmitter audio gain is factory set at 1/3 of maximum range, which should be suitable for most applications. For loud or soft speakers/singers a gain adjustment may be necessary. Have the speaker or singer use the microphone in a normal performance level voice. The Audio Meter in the main receiver display screen should show peaks around the -3 dB level. If the meter peaks all the way to the right or well below the -3 dB level, adjust the transmitter audio gain.

   To adjust the transmitter gain, gently insert the provided screwdriver (or other screwdriver) into the adjustment potentiometer. Gently turn counterclockwise until the control stops (the microphone output is at minimum but not off). Slowly turn the gain control up (clockwise) while speaking/singing into the microphone or playing the instrument and the audio meter shows peaks around -3 dB.

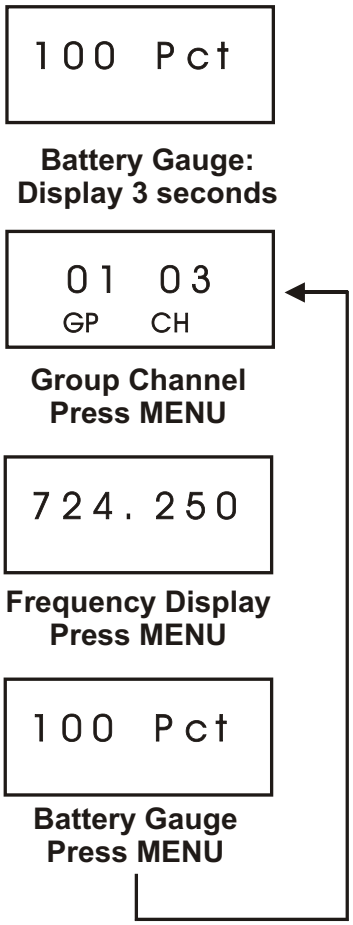
9. **Instrument Gain Adjustment.** Play the instrument as normal. Adjust the transmitter audio gain if needed. If the audio is distorted, insure that the voice/instrument switch is in the instrument position. Very high output instruments may need additional cord attenuation.

   NOTE: Operating with the transmitter audio gain set as high as possible (without distortion or peaks all the way to the right end of the meter) will result in the best performance and highest signal to noise ratio.

10. **Transmitting Power Adjustment if necessary.** The CSB-1000 transmitter has two radio transmit power settings. It is factory set in the NORM position, which will maximize the number of simultaneous users and limit interference with other wireless devices. Switching to HIGH power will maximize range for outdoor and single user applications.

11. **Test Performance.** Go back to Section 3 - Receiver Setup and Operation step 9 to complete system set up and test.

Transmitter Display Squence:



Battery Indicator:

Battery condition is displayed on power up. The low battery LED should flash once to indicate an acceptable battery. If the battery is nearly depleated, the low battery LED will come on and stay on. When battery voltage is too low for proper microphone operation, the low battery LED will flash continuously and the unit will not transmit. You can check battery condition at any time by pressing the MENU button twice from the Group/Channel display screen. Battery condition is also displayed at the receiver.

Group and Channel Setting:

Transmitter frequencies are divided into 20 Groups of 16 frequencies (or Channels). Frequency Groups 1 through 10 are predefined and cannot be changed. Frequency Groups 11u through 20u can be set by the user.

To set the Group and Channel: Press SET at the Group/Channel display screen. When the Group number begins to flash, use UP or DOWN to change the Group number. Press SET to save the new Group setting. When the Channel number begins to flash, use UP or DOWN to change the Channel number. Press SET to save the new Channel setting. Press MENU if you wish to stop without saving.

Displaying and Setting Transmitter Frequency:

To see the current operating frequency, press MENU at the Group/Channel Screen.

Setting Custom Frequencies: Select a Group between 11u and 20u and a Channel between 1 and 16 (see **Group and Channel Setting** above). Press MENU to display the transmitter frequency. If this Group/Channel is blank you will see '---.---' on the frequency display. (Blank channels also display a '-' after the channel number on the Group/Channel screen). Press SET and use the UP or DOWN buttons to change the frequency. Press SET to save the new frequency, or MENU to quit without saving changes since SET was last pressed.

Power Switch Disable:
When the Power Switch is disabled, you must move the power switch to the OFF position and then press a control key (MENU, SET, UP or DOWN) to power the unit off.

To engage a one-time power switch lock: Turn the unit on. After the display shows Group & Channel, quickly turn the power off and on three times. "On-Loc" will show on the display. A One-time lock disables itself the next time the unit is turned on.

To always lock the power switch ON, press and hold SET, then press UP. "On-Loc" will show on the display.

To disable Power Lock, press and hold SET, then press DOWN. "On-Off" will show on the display. The unit can now be turned off with just the power switch.

Firmware Revision Level:

Hold down MENU for 5 seconds. The program firmware revision number will display, followed by the factory preset frequency group revision number.

Quick Setup:

Press and hold the MENU button. Turn on the power switch. Wait until Group and Channel are displayed. Release the MENU button. Unit is now set to Group 1/Channel 1 with Group or Channel Flashing.

Factory Reset:

WARNING: This will erase any user frequencies stored in Groups 11u to 20u. From the Group/Channel screen, press and hold MENU, SET, UP and DOWN until "Clr.All" is displayed on the LCD screen. Unit will restart in Quick Setup mode.

Section 4

Receiver Display Screens and Functions

Main Operating Screen

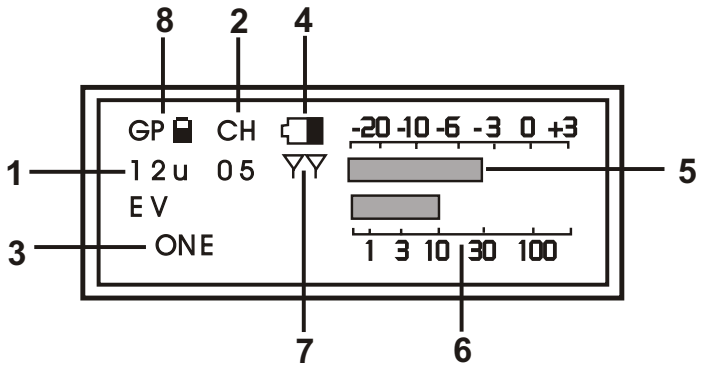


Figure 8
Main Operating Screen

Display:

1. **Group Number** ..... **10 factory + 10 user defined**
2. **Channel Number** ..... **01 to 16**
3. **Microphone Label or Name** ..... **2 lines x 9 characters - all capitals**
4. **Battery Status** ..... **100 to 0 Pct in 20 Pct steps / Flash if low**
5. **Audio Meter** ..... **-30 to +3**
6. **RF Signal Strength** ..... **0 to 300**
7. **Antenna Diversity Status** ..... **left or right antenna combinations**
8. **Edit Lockout Status** ..... **Padlock next to GP indicates Locked**

Controls:

1. **[MENU] goes to next screen**
2. **[UP] + [DOWN] for 3 seconds Sets / Resets Edit Lockout**

Group / Channel Edit Screen

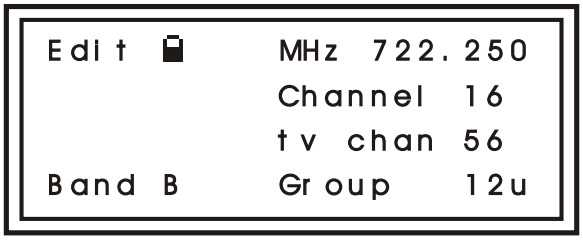


Figure 9
Group / Channel Edit Screen

Display:

1. **Frequency Band Designation · · · · · · A or B**
2. **Group Number· · · · · · · · · · · · · · · · · 10 factory + 10 user defined**
3. **Channel Number · · · · · · · · · · · · · · · 01 - 16**
4. **TV Channel · · · · · · · · · · · · · · · · · · US TV channel the frequency is in**
5. **Transmit / Receive Frequency · · · · · 680.100 - 703.900 MHz A Band (US)**
   722.100 - 745.900 MHz B Band (US)
   798.100 - 821.900 MHz D Band
   841.100 - 864.900 MHz E Band

Controls:

1. **[MENU] goes to next screen**

2. **[UP] + [DOWN] for 3 seconds Sets / Resets Edit Lockout**

If Edit Mode is not locked out:

3. [SET]
   - **A.** Starts Edit mode; Group Number begins flashing
   - **B.** Steps between Group Number and Channel Number. Selected field flashes to indicate it can be changed.
   - **C.** Effects change after [UP] or [DOWN] have been pressed, then returns you to Display Mode

4. [MENU] stops Edit mode without effecting changes since [SET] was last pressed

5. [UP] or [DOWN] (in Edit Mode)
   - **A.** Increments or decrements Group Number when flashing
   - **B.** Increments or decrements Channel Number when flashing
   - **C.** [UP] and [DOWN] auto-repeat when the button is held. Auto-repeat starts after the button has been held for 1 second. Group and Channel have a slow auto-repeat.

Frequency Edit (User Groups Only)

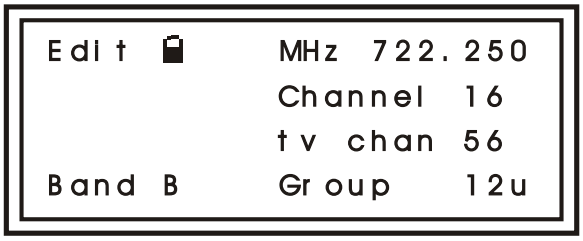


Figure 10
Frequency Edit (User Groups Only)

Display:

1. **Frequency Band Designation · · · · · · A or B**
2. **Group Number· · · · · · · · · · · · · · · · · 10 factory + 10 user defined**
3. **Channel Number · · · · · · · · · · · · · · · 01 - 16**
4. **TV Channel · · · · · · · · · · · · · · · · · · US TV channel the frequency is in**
5. **Transmit / Receive Frequency · · · · · 680.100 - 703.900 MHz A Band (US)**
   722.100 - 745.900 MHz B Band (US)
   798.100 - 821.900 MHz D Band
   841.100 - 864.900 MHz E Band

Controls:

1. **[MENU] goes to next screen**
2. **[UP] + [DOWN] for 3 seconds Sets / Resets Edit Lockout**

If Edit Mode is not locked out:

3. [SET]
   - **A.** Starts Edit mode; Frequency begins flashing
   - **B.** Steps between frequency and channel number, selected field flashes to indicate change
   - **C.** Effects change after [UP] or [DOWN] have been pressed, then returns you to Display Mode
4. [MENU] stops Edit mode without effecting changes since [SET] was last pressed
5. [UP] or [DOWN] (in Edit Mode)
   - **A.** In User Defined groups, [UP] or [DOWN] increments or decrements the frequency in 25 kHz increments
   - **B.** Increment or decrements channel number when flashing
   - **C.** Undefined frequencies are displayed as '---.---'.
   - **D.** [UP] and [DOWN] auto-repeat when the button is held. Slow Auto-repeat starts after the button has been held for 1 second. If the button is held for 16 slow steps, Auto-repeat shifts to fast Auto-repeat.

Functions Screen

Controls:

Use [UP] [DOWN] to select
and view other functions

Use [SET] to start the function

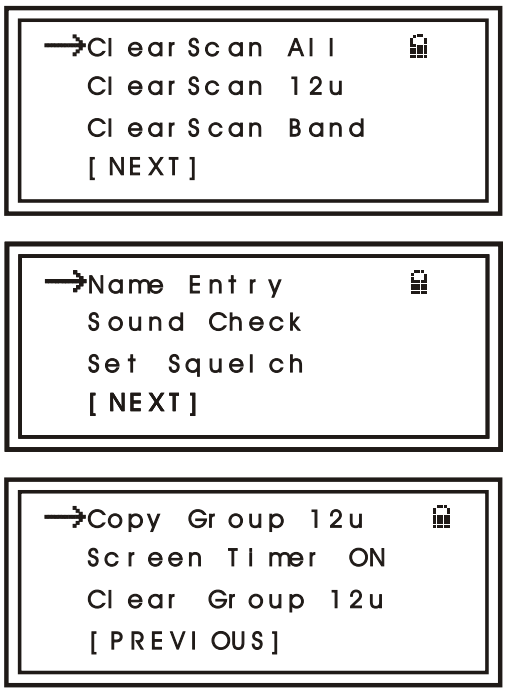


Figure 11
Functions Screen

ClearScan™ All

ClearScan™ All searches all defined frequency groups for the ones with the greatest number of receiver channels clear of interference. Once a group is selected an additional scan is made to determine the best frequencies in the group:

Press [SET] to initiate

Press [MENU] to abort

After scanning, ClearScan™ will display the group that has the most interference free receive channels. These clear channels are displayed on the right half of the screen. Busy channels are represented by an X. Press [SET] to place the receiver on this group. ClearScan™ then scans to select the clearest channels within the group (see ClearScan™ Current Group). Press [SET] to accept this channel and return to the operating screen.

The [UP] and [DOWN] buttons may be used to select the next best group/channel and so forth.

Press [MENU] to return to the Operating Screen with the receiver set to the Group, Channel and Frequency it was on prior to executing ClearScan™.

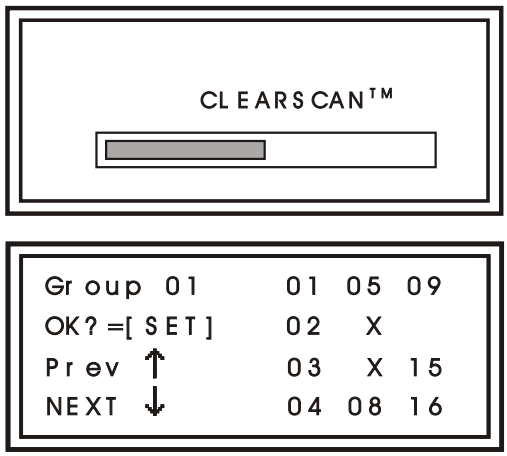


Figure 12
ClearScan™All

ClearScan™ Current Group

ClearScan™ Current Group scans channels within the currently selected frequency group and displays the channels that are clear of interference.

Press [SET] to initiate

Press [MENU] to abort

After scanning the currently selected group, ClearScan™ will display the channels that are free of interference. These clear channels are displayed on the right half of the screen. The channels are ranked according to noise; the channel with the least amount of interference is presented first.

The [UP] and [DOWN] buttons may be used to select a different clear channel within the currently selected group.

Press [SET] to place the receiver on the currently selected channel and return to the Operating Screen.

Press [MENU] to return to the Operating Screen with the receiver set to the Group, Channel and Frequency it was on prior to executing ClearScan™.

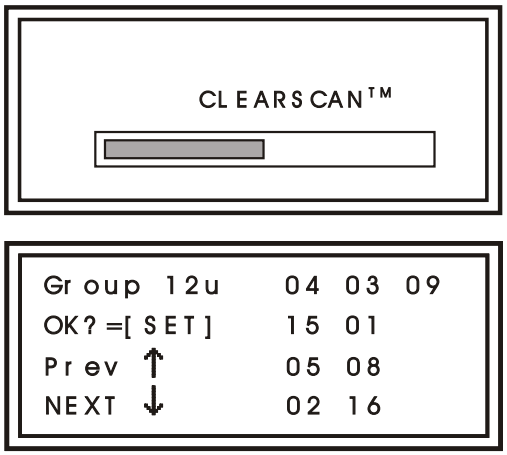


Figure 13
ClearScan™ Current Group

ClearScan™ Band

ClearScan™ band continuously scans all frequencies within the bandwidth of the receiver. The scan is started at the frequency the receiver is on and proceeds in 200 kHz increments on either side until the whole band is scanned. The scan is repeated until ended by the user.

Press [SET] to initiate

Each frequency is scanned continuously within the band; the highest reading on each frequency is stored to give a worse-case reading as long as the scan is being done.

Pressing [SET] ends the scan. After scanning, ClearScan™ places the 16 best frequencies in the band into 'scanned' group 21s. This group is stored to prevent accidental erasure. The best frequency is placed at channel one and displayed.

The [UP] and [DOWN] buttons may be used to select the next clear channel at least 200 kHz above or below the currently displayed frequency.

Press [SET] to accept currently selected frequency and return to the Operating Screen.

Press [MENU] to return to the Operating Screen with the receiver set to the Group, Channel and Frequency it was on prior to executing ClearScan™.

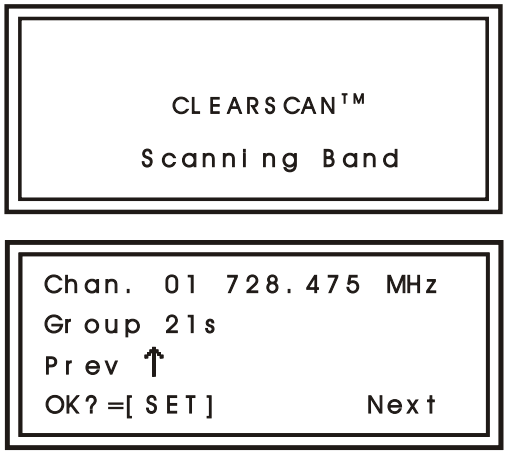


Figure 14
ClearScan™ Band

Edit Microphone Label/Name

Display:

1. Microphone Label/Name
2. Character Set

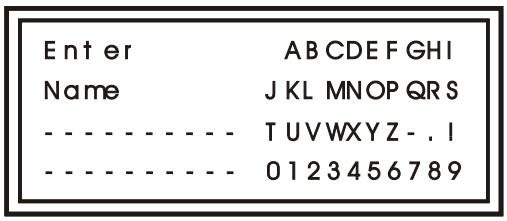


Figure 15
Edit Microphone Label/Name

Controls:

1. [MENU] goes to next screen.
2. [SET] (First time) enters Edit Mode:
   - **A.** Starts flashing first character in Name/Label
   - **B.** Flashes first character of the Name/Label in the Character Set
3. [UP] flashes the next character in the Character Set and displays the selected character at the current cursor position in the Name field.
4. [DOWN] flashes the previous character in the Character Set and displays the selected character at the current cursor position in the Name field.
5. [SET] saves the currently selected character into the current character position of the Name/Label field and advances to the next character position of the Name/Label field.
6. [MENU] saves the Name/Label as displayed on the screen and goes back to Display Mode on this screen.

Sound Check Screen

Display:

1. Battery Status
2. Peak Audio level held while screen is displayed
3. Range of RF Signal Strength
4. Squelch Break Counter

Controls:

1. [MENU] goes to next screen
2. [SET] clears screen display variables and restarts Sound Check
3. [UP] turns on the Count Beep (🔊), [DOWN] turns the beep off (🔇).

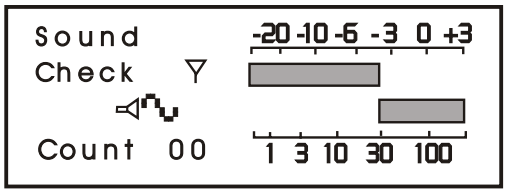


Figure 16
Sound Check Screen

Set Squelch Threshold:

CAUTION: SEE PAGE 3-3 STEP 11A.

Display:

1. Press[SET]

Controls:

1. [SET] disables tone squelch and enables edit mode (allows squelch level adjustment). Squelch bar will flash in edit mode. Tone Squelch is disabled.
2. [UP] raises the squelch threshold
3. [DOWN] lowers the squelch threshold
4. [SET] saves the new threshold
5. [MENU] (From edit mode) restores threshold to the setting just after the last time [SET] was pressed

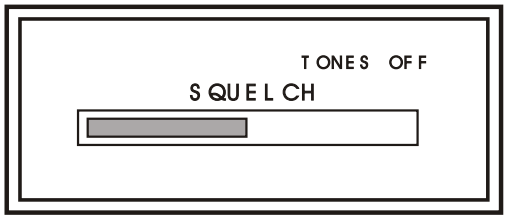


Figure 17
Squelch Threshold

Copy Group

Selecting the Copy Group will copy the currently selected group to the first unused User Group.

Press [SET] to accept the group and place the unit into the Frequency Edit Screen (User Defined groups only) for editing.

Press [UP/DOWN} to select a different user group.

Press [MENU] to return radio to its previous state.

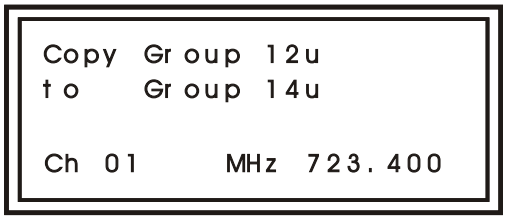


Figure 18
Copy Group

Screen Timer

Selecting the Screen Timer allows enabling/disabling of screen timer. With timer enabled the screen will return to Operating screen if no key is pressed within five minutes.

NOTE: Timer is not active in the sound check screen.

Press [UP/DOWN] to turn timer ON/OFF.

Press [SET] to setting.

Press [MENU] to return radio to its previous state.

Figure 19
Screen Timer

Clear Group

Clear Group will delete all channels within the selected group.

Press [SET] to clear the group, and place the unit in the Group/Channel edit screen with Group=1, Channel=1. Group will be flashing to enable the selection of a new group.

Press [MENU] to return radio to the operating screen.

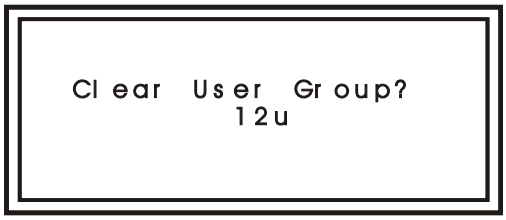


Figure 20
Clear Group

Lockout

Press and hold [UP] + [DOWN] for 3 seconds. The unit will not allow editing of any of the user variables: Group, Channel, Frequencies, Squelch, Name, and ClearScan™.

Master Reset

Press and hold [Menu + Set + Up + Down] to place the unit into its factory configuration: Group 1, channel 1, user groups cleared, default squelch setting.

Transmitter On/Off Lock Out

There are two On/Off lock out modes available, One Time and Everytime.

One Time: Cycling the power switch 3 times in under 3 seconds and On-Loc will be displayed for a second and then return to normal operation. The power switch alone will no longer turn the unit off. To turn the unit off, put the power switch in the off position (On-Loc will be displayed) open the battery door and press [Menu], [Set], [Up] or [Down] and the unit will power down. The next time the unit is powered on the power switch will operate normally.

Everytime Use: With the unit on and operating in the normal mode, press and hold [Set] and press [Up]. On-Loc will be displayed and the power switch alone will no longer turn the unit off. To turn the unit off, put the power switch in the off position (On-Loc will be displayed) open the battery door and press [Menu], [Set], [Up] or [Down] and the unit will power down. The next time the unit is powered on the On-Loc function will still be on. To enable the power switch, press and hold [Set] and press [Down] (On-Off will be displayed).

Section 5

Guidelines and Recommendations for Best Performance

Compatibility

The transmitter and receiver must be of the same frequency band and set to the same group and channel in order to work together. The CSR-1000 is available in two frequency bands, A and B. The band information is available in the Group/Channel edit screen on the receiver, the bottom label on the handheld transmitter, and on the back panel label on the bodypack.

Using Multiple Wireless Systems

If two or more CSR-1000 systems and/or other UHF/VHF wireless systems are being used in the same location, proper frequency coordination is necessary to avoid interference. All channels in the CSR-1000 factory set groups are designed to work together, so if channels from just one group are used no further coordination is required. Contact your dealer or Telex for assistance if you are planning more systems or using the CSR-1000 with other wireless equipment.

IMPORTANT NOTE; For 12 or less frequencies to be used together, select all frequencies from only one of group 1-6. Normal power will sometimes work more effectively than high power when using larger numbers of frequencies.

IMPORTANT NOTE: Groups 7, 8, 9, and 10 have 16 channels and are marked with an N (7N). These groups require the transmitters to be in the NORMAL transmit power setting to work together. The N groups will always be displayed after groups 1-6 and any user defined groups no matter how many channels are free. If you need to use more than 12 systems at one time, scroll down to the N groups and use the clearest group with Normal transmit power.

Multiple Systems and Advanced ClearScan™

Because all of the channels in the factory set groups are compatible Advanced ClearScan™ can be used to set up multiple systems quickly and with confidence. When setting up more than one system, set up the first system using the ClearScan™ All function. Once the working Group has been established, leave the first transmitter on, set the next receiver Group to the working Group and run ClearScan™ Group. This will provide the next clearest channel in that group. Set the transmitter to match, leave it on and repeat until all the systems are set up. If you run out of clear channels in one group but need to set up more systems, contact your dealer or Telex for assistance in choosing additional frequencies.

Potential Sources of Interference

There are many potential sources of interference for your wireless system. Any electronic product that contains digital circuitry including digital signal processors (reverb/multi-effects units), electronic keyboards, digital lighting controllers, CD and DVD players, and computers, all emit RF energy that can adversely affect the performance of your wireless system. It is always best to place the receiver as far away as possible from these devices to minimize potential problems.

Analog and Digital Television stations can also interfere with your wireless system. The CSR-1000 is designed to operate over 24 MHz of RF bandwidth, which covers four TV channels. The factory presets on the CSR-1000 are optimized for conditions where one or possibly two of the four stations are covered in your area. If three of the four stations are used in your area, it will severely limit the number of systems that will operate together and you should be using a different band.

Battery Recommendations

Fresh 9-volt alkaline batteries from a quality manufacturer will yield the best performance from your CSR-1000 transmitters. Rechargeable 8.4-volt Ni-Cad batteries can be used but will result in much shorter operation time.

When the transmitters are turned on, the red battery LED will flash once if the battery is good. If the light does not light or stays lit continuously, the battery is weak or dead. If the light comes on during use, the battery is weakening and should be replaced as soon as possible. If sound quality degrades during use, it may be the result of a weakening battery.

Caution: The battery level indicators, on the transmitters and receiver displays, are based on the use of alkaline batteries. Use of other battery types will result in false readings on these indicators although the low battery LED on the transmitters will operate normally.

Receiver and Antenna Placement

Do not place the receiver near a large metal object or surface. Locate the receiver as close as possible to the area where the transmitter will be used. Ideally, position the receiver/antennas within sight of the transmitter. When using multiple systems, do not allow antennas to cross or touch each other. For best results with multiple receivers, use an AD-450 antenna splitter (see Section 8).

Section 6

Trouble Shooting Guide

Problem	Possible Causes	Solutions
No audio and no display on the receiver	Receiver is off	Make sure that the power supply is properly connected and the on/off button is in the on position
No audio and no RF signal indicator on the receiver display	Transmitter is off	Turn on transmitter power switch
	Transmitter is on a different channel	Match the transmitter group and channel to the one displayed on the receiver.
	No (or dead) battery in transmitter	Insert fresh battery in transmitter
	Faulty battery contacts	Clean and or bend contact
No Audio with good RF signal indicator but no (or low) Audio indicator on the receiver display	Microphone not connected	Check the TA4F connector on the bodypack or the detachable microphone element connection on the handheld
	Low gain setting on the transmitter	Increase the transmitter gain
No (or low) Audio with good RF signal and Audio indicators on receiver display	Receiver audio output cable is damaged or disconnected	Connect, repair or replace cable
	Gain not sufficient on mixer/preamp/amp input or it is muted	Increase gain on mixer or un-mute the input
	Receiver output too low (1/4" output)	Increase the audio output setting
Distorted audio signal	Transmitter audio gain too high	Decrease the transmitter gain setting
	Receiver output too high (1/4" output)	Decrease the receiver output setting
	Loud instrument or audio source	Change the bodypack audio mode switch to Instrument setting
	Battery level low in transmitter	Insert fresh battery in transmitter
Interference	Another CSR-1000 system in the installation is on the same channel or the signals are mixing	Make sure all the channels in use are from the same group. Use ClearScan™ to select the clearest group. If more channels are needed call Telex at 800-392-3497 for coordination help
	Another wireless product in the area is on the same frequency or the signals are mixing	Use ClearScan™ to change the operating frequency. If problems persist, call Telex at 800-392-3497 for coordination help

Trouble Shooting Guide (continued)

Problem	Possible Causes	Solutions
Interference (continued)	Receiver is too close to digital signal processor or similar device	Move the receiver to a different location
	Strong electromagnetic field from stage lighting or other source near the transmitter or receiver, which may be producing RF noise at or near the operating frequency	Use ClearScan™ to change the operating frequency. Repair or remove the source of interference. Move the receiver to a different location.
Short range or drop-outs	RF reflective metal obstacles between the transmitter and receiver	Move the obstacles, or reposition the receiver/antennas
	Poorly oriented beltpack antenna	Check the antenna connection and reorient the bodypack so the antenna is vertical (up and down) and facing the receiver, if possible.
	Faulty receiving antenna system	Check all antenna connections and reposition to be in line-or-sight with the transmitter
	Application requires high transmitter output	Switch the transmitter to the high power setting (see page 3-6)
Can't change settings on receiver or transmitter	Lockout feature is enabled	Disable lockout (see pages 3-3, 3-5, and 3-7)
Can't change frequency setting for a channel	Channel not in a user definable group	Change to a user definable group (see page 3-2)
Bodypack or Handheld transmitter will not turn off, display says On-Loc	On/Off lockout is engaged	Put the on/off switch in the off position and press one of the programming buttons (see page 4-7)

Section 7
Technical Specifications

CSR-1000 Receiver
Specifications

Overall

Receiver Type	Synthesized PLL
Frequency Range (RF)	A Band 680 - 704 MHz B Band 722 - 746 MHz D Band 798 - 822 MHz E Band 841 - 865 MHz
Number of Channels	>900 possible channels Programmable in 25 kHz steps
Modulation	+/- 40 kHz deviation
Diversity	DSP Posi -Phase™ True Diversity
RF Sensitivity	<0.8 µV for 12 dB SINAD
Image Rejection	>60 dB
Squelch	Tone plus Amplitude
Ultimate Quieting	> 100 dB
Power Requirements	12 VAC, 750mA max
Operating Temperature	-7° to 49° C (20° to 120° F)
Dimensions	1.72 in. H x 7.50 in. W x 8.38 in. D 43.69 mm H x 190.50 mm W x 212.85 mm D

CSR-1000 Receiver
Specifications (continued)

Audio Parameters

Frequency Response . . . . . 30 - 15 kHz +/- 2dB

Balanced Output . . . . . -20 dBV (max @ 40 kHz deviation)

Unbalanced Output . . . . . adjustable 8 mV to 0.755V RMS

Distortion . . . . . <0.5% (ref 1kHz, 40kHz deviation)

Signal-to-Noise Ratio . . . . . >110 dB

Dynamic Range . . . . . >100 dB

Transmitters CSB-1000 and CSH-1000

RF Output . . . . . Normal 5 mW Typical
High 50 mW Typical

Microphone Head RC767A . . . . . ElectroVoice N/D 767a cardioid N/DYM dynamic

Microphone Head RC510 . . . . . ElectroVoice RE 510 cardioid condenser

Standard Lavalier Microphone . . . . . Telex ELM-22 MicroMini™
Omni-Directional Condenser

TA4F Connector Wiring . . . . . Pin 1: Ground; Pin 2 Mic Input;
Pin 3: +5V bias; Pin 4: +5V bias
through a 3kW resistor

Audio Gain Adjustment Range . . . . . Handheld 26 dB
Bodypack 40 dB

Power Requirements . . . . . 9 Volt Alkaline Battery

Battery Life (Typical) . . . . . 8-10 hours with 9-Volt Alkaline Typical

Bodypack Antenna . . . . . Detachable 1/4 wave

Handheld Antenna . . . . . Internal 1/2 wave

Dimensions (Handheld) . . . . . 10.54 in. Long
26.8 cm Long

Dimensions (bodypack) . . . . . 3.8 in. H x 2.38 in. W x 0.92 in. D
96.5 mm H x 60.5 mm W x 23.4 mm D

FCC INFORMATION

The TELEX Receiver CSR-1000 is authorized under Part 15 of the Federal Communication Commission.

The Telex CSB-1000 and CSH-1000 Transmitters are type Accepted under United States Federal Communications Commission Part 74.

Licensing of Telex equipment is the user's responsibility and licensability depends upon the user's classification, user's application, and frequency selected. Telex strongly urges the user to contact the appropriate telecommunications authority for any desired clarification.

CAUTION: Any changes or modifications made to the above equipment could void the user's authority to operate the equipment.

Section 8
Accessories and Parts

	MODEL No.	Order No.
1/4 Wave Rx Antenna (A/B)	ANU-14	879010
1/4 Wave Rx Antenna (D/E)		879010-1
1/2 Wave Rx Antenna (A)	CLA-5 (Green)	870658-5
1/2 Wave Rx Antenna (B)	CLA-6 (Orange)	870658-6
1/2 Wave Rx Antenna (D + E)	CLA-8 (Purple)	870658-8
1/2 Wave Antenna Bracket	AB-2	71138000
Antenna/Power Distribution (A, B, D, E)	APD4	APD4 (A + B Band) APD4-1 UK (E Band) APD4-1 EUR (D Band)
Termination Plug for APD4	TP-2	650095
Directional Rx Antenna (A, B, D, E)	LPA-500 (450-900 MHz)	LPA 500
Coaxial Antenna Cable	CXU-25 CXU-50 CXU-75 CXU-100	71151025 71151050 71151075 71151100
1/4 Wave Bodypack Tx Antenna (A)	AN-Flex A (Green)	879220-4
1/4 Wave Bodypack Tx Antenna (B + D)	AN-Flex B + D (RED)	879220-5
1/4 Wave Bodypack TX Antenna (E)	AN-Flex E (Blue)	879220-6
1/4 Wave Super-Flex Tx Antenna (A)	AN-Sflex A (Green)	879538-4
1/4 Wave Super-Flex Tx Antenna (B + D)	AN-Sflex B + D (Red)	879538-5
1/4 Wave Super-Flex Tx Antenna (E)	AN-S flex E Blue	879538-6
Bodypack Pouch	WP-1000	879553
Strip Connector Mating Block	SCB-1	640156
Guitar Cord	MAC-G2	879526
767a Dynamic Head for CSH-1000	RC767A	71837000
RE510 Condenser Head for CSH-1000	RC510	71839000

CUSTOMER SERVICE INFORMATION

If your receiver or transmitter should need servicing under the warranty, please contact:

North America
Customer Service Department
TELEX COMMUNICATIONS, INC.
8601 East Cornhusker Highway,
Lincoln, Nebraska 68507-9702 U.S.A.
Phone: (402) 467-5321

Technical Assistance: 800-392-3497
(U.S. and Canada only)

Europe
Telex EVI Audio GmBH
Hirschberger Ring 45
D-94315 Straubing
Germany
Tel: +49 (0) 9421 706 0
Fax: +49 (0) 9421 706 350

All claims of defect or shortage should be sent to the above address. When returning items for service, you must provide date and proof of purchase, such as a copy of the sales receipt, to establish warranty. A letter should be included outlining all symptoms and claimed defects. Information on how the equipment was installed and used is very helpful. Please include your phone number and return address in case our service technicians need to contact you.

Units that have been modified cannot be accepted for repair.

Include all information requested by the Service Department. Then pack the unit as follows:

Check the unit to see that all parts and screws are in place. Then wrap it in heavy paper or put it in a plastic bag. If the original carton is not available, place the unit in a strong carton that is at least six inches bigger in all three dimensions than the unit. Fill the carton equally around the unit with resilient packing material (shredded paper, foam, etc.). Seal it with gummed paper tape, tie it with a strong cord, and ship it by prepaid express, United Parcel Service or insured parcel post to the Telex Service Department.

It is very important that the shipment be well-packed and fully insured. Damage claims must be settled between you and the carrier and this can delay repair and return of the unit to you.

Telex reserves the right to make changes in design and improvement on its product without assuming any obligation to install the same on any of its products previously manufactured. Further Telex reserves the right to ship new and/or improved products which are similar to the form, fit and function of products originally ordered.

For other office locations see www.electrovoice.com

Section 10
Limited Warranty

Limited Warranty

TELEX Communications, Inc. (”Telex”) warrants to the user, who originally purchased the serialized product delivered with this card, that the product will be free from defects in material and workmanship for the following periods after such date of purchase. Material 36 months, workmanship 36 months. Microphones, earphones, neckloops, cables & connectors are warranted for ninety days. Telex will, at its option, repair or replace free of charge such defective products subject to the following conditions:

1. Delivery of the product or parts postage prepaid to the Telex/EV dealer, authorized service facility or factory.

2. Determination by Telex that a defect exists and is covered by limited warranty. Defects due to alteration, repair by unauthorized persons, insertion of non-Telex parts, misuse, accidental damage, use of the equipment for purposes other than those for which it was designed, and the like, are not covered by this limited warranty and repairs thereof will be subject to normal service charges.

3. Repairs and replacement parts are covered under this limited warranty only for the unexpired term of the original limited warranty.

4. Products purchased from unauthorized dealers are not warranted.

5. You must fill out and return the product warranty card to register the purchase date of serialized items. A copy of the bill of sale showing the date of purchase must accompany all warranty work.

THIS LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXTENDS BEYOND THE TERM HEREOF. THE REMEDIES PROVIDED BY THIS LIMITED WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON. NO PERSON HAS ANY AUTHORITY TO BIND TELEX TO ANY REPRESENTATION OR WARRANTY OTHER THAN THOSE PROVIDED BY THIS LIMITED WARRANTY. TELEX SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY FAILURE OR OTHERWISE OF THE PRODUCT.

Some states do not allow exclusions or limitations of incidental or consequential damages or limitations on how long an implied warranty lasts, so the limitations or exclusions herein may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.

Electro-Voice®

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