

# REI

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## AM/FM Stereo USB/SD Weather Band Radio, w/ Front-Panel Auxiliary Input and built in PA



MP3/WMA



SD

Radio Engineering Industries, Inc.

[www.radioeng.com](http://www.radioeng.com)

Rev A.3

Date: 02-28-13

Thank you for purchasing the ST-4000 AM/FM/MP3/USB/SD Receiver from REI.  
 This product is designed and tested to withstand temperature and vibration extremes.  
 Please read the owner's manual carefully before attempting to install.

If you have an installation question or need installation assistance, please call the:

**SERVICE HOT LINE**  
**1-877-726-4617 Toll Free USA & CANADA**  
**1-402-339-2200**

**IF ADDITIONAL INSTALLATION COMPONENTS ARE NECESSARY, CONTACT YOUR REI**

**SALES REP FOR:**

**\*\* OEM /FACTORY WIRING HARNESS ADAPTERS**

**\*\* ANTENNAS & ANTENNA ADAPTERS**

**\*\* SPEAKERS & GRILLS**

**Radio Engineering Industries, Inc.**

6534 "L" Street  
 Omaha, Nebraska 68117  
[www.radioeng.com](http://www.radioeng.com)

**FEATURES:**

- Front-panel USB type-A input
- Front-panel SD/SDHC CARD input
- Supports MP3/WMA playback
- Displays ID3 tag information
- 50W x 4 Output power
- Non-volatile memory back-up stores user Presets when the battery is disconnected
- 7 channel NOAA® Weather Band Tuner
- Electronic AM/FM Stereo Tuner
- Radio Station Lock-Out
- EURO and USA frequency bands
- 12/24 hr Clock modes
- Preset Up to 24 Radio Stations (12 FM, 12 AM)
- 2 Aux Inputs (Front 3.5mm Stereo Jack/Rear RCA)
- Electronic Bass, Treble, Balance, and Fader Controls
- LED Backlighting
- Integrated PA Microphone inputs (Microphones & Adapters Sold Separately)
- Rear Channel Pre-amp outputs
- IR wireless Remote Control Ready (Remote and IR extension cable sold separately)

**SPECIFICATIONS**

**AUDIO SECTION**

Power supply voltage (negative ground) ..... 12V DC (10V-15.6V)  
 Standby Current.....10mA  
 Max Current Consumption.....10A  
 Speaker impedance .....4-8 Ohms per channel  
 Maximum Pre-output Voltage.....2.0Vrms/10k ohms

**POWER OUTPUT**

Continuous Output into 4Ω, 20 to 20,000 Hz at 10 % THD .....4 x 25Watts  
 Maximum Power Output (Volume control Maximum).....50W×4 (at 1kHz)

**FM TUNER**

Range .....(USA) 87.5 – 107.9 MHz  
 (EUR) 87.50 – 108.00 MHz  
 Usable Sensitivity (S/N = 30dB).....7.34dBf.(0.6uV/75ohms)  
 Signal to noise ratio .....58dB (Mono)  
 Stereo separation (@ 1K Hz) .....42 dB

**AM TUNER**

Range .....(USA)530 – 1,710 kHz  
 (EUR) 522 – 1,620 kHz  
 Usable Sensitivity (S/N = 20dB).....23dBuV (14.4uV)  
 Signal to noise ratio (LEVEL60dbuV)..... 60 dB

**WEATHER BAND TUNER**

Range .....162.400 –162.550MHz  
 Usable Sensitivity (S/N = 20dB).....0.7uV(-9dBuV)  
 Signal to noise ratio (LEVEL40dbuV).....42dB

**SD/USB INTERFACE**

USB Standard .....USB1.1/2.0 (Full Speed)  
 Maximum Supply Current .....500mA  
 File System ..... Fat16/32  
 MP3 decoding format ..... MPEG-1 & 2 Audio layer 3  
 WMA decoding format ..... Ver. 7, 7.1,8,9,10,11 (2ch audio)  
 (Windows Media Player)

**AUXILIARY INPUT SPECIFICATIONS**

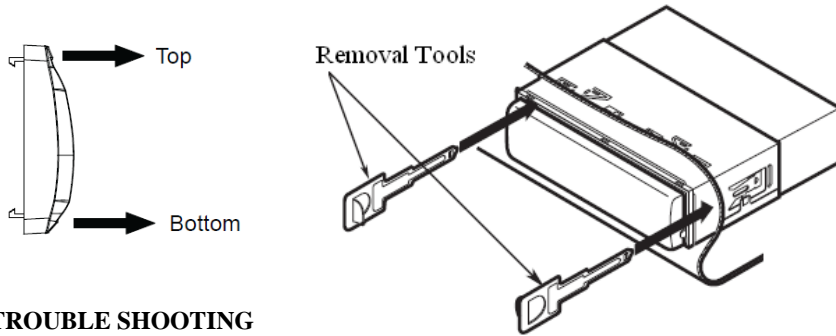
Input Voltage Maximum Voltage.....1.2V  
 Input impedance.....10KΩ

**DIMENSIONS**

Chassis (W x H x D) .....178mm (7") x 50mm (2") x 161mm (6-3/8")  
 Nosepiece (W x H x D) .....188mm (7-3/8") x 58mm (2-1/4") x 17mm (5/8")  
 Weight .....3.5lbs(1.6kg)

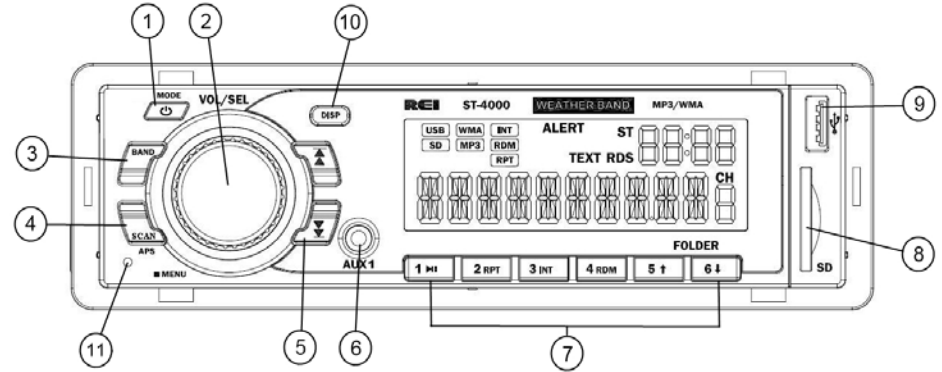
## RADIO REMOVAL

1. To remove the radio, disconnect the rear support stud if installed. Carefully release the front Trim Ring lock tabs at the top and bottom of the nosepiece. Then insert the two release keys on both sides of the nosepiece and pull the radio out.



## TROUBLE SHOOTING

Problem	Cause	Solution
Power light does not turn on	No power to Memory wire; no power to ACC wire; blown fuse.	Check for both ACC & BATTERY voltage with Multi-meter, check all fuses.
No sound	Speakers not connected; speakers connected with bad splices; Speakers shorted to ground; total speakers load not within 4-8 Ω/ch.	Connect speakers to harness; check all spliced wires; verify speakers not shorted to chassis; verify total speaker impedance. Check volume level.
Public Address can NOT be heard over speakers	Microphone volume level is "0"; microphone is pinned wrong; wrong microphone type is used. Microphone is set to the wrong outputs.	Turn the volume up on the microphone when the LCD display's MIC; Check that the correct microphone type is connected. Check the PA setting's in the radio's menu.
LCD Display says MIC and front controls are locked	PA system is triggered	Remove microphone connection and verify correct pinning; replace microphone.
Cannot tune radio stations	The antenna cable is not connected. The signal is too weak. The radio is in the wrong frequency steps.	Connect the antenna cable. Check the frequency spacing in the radio's menu.
Digital media won't play or says "ERROR" and skips to "AUX"	Media is an unsupported file type.	Encode media with a supported file type; use different software to encode media



## CONTROLS AND INDICATORS

- (1) Power/Mode Button
- (2) Volume/Select Knob
- (3) Band Button
- (4) APS/Scan Button
- (5) Radio Station Tune/ Media Track Control Buttons
- (6) Front Auxiliary Input Jack
- (7) Preset Memory Buttons/Playback Options
- (8) SD Card Input slot
- (9) USB Input Slot
- (10) Display Button
- (11) Reset Button

## OPERATION

- 1) **Power On/Off Button**  
Press the Power Button to turn the unit ON. Press and hold this button to turn the unit OFF. The button will illuminate RED when OFF and GREEN when ON.  
Note: Radio can also be powered on by pressing any front button.  
  
Mode Button  
Press this button to select source mode (RADIO /USB/CARD/AUX1/AUX2)  
\*USB and SD card must be inserted to activate these modes
- 2) **Volume/Select Knob**  
Rotate the knob left or right to change the volume level.  
Press the knob to select one of the following functions:  
VOL---BASS---TREB---BAL--FAD  
Upon choosing the function, rotate the knob to adjust the desired setting.  
PLEASE NOTE: If the Volume/Select Knob has not been adjusted for 5 seconds it will automatically revert back to volume function.
- 3) **Band Button**  
Press this button to change radio bands as follows:  
FM1—FM2— WB1— AM1—AM2  
Press this button to confirm changes in the SETUP menu
- 4) **Auto Store / Preset Scan Button**  
Press and hold this button for 2 seconds to auto program available stations into the preset memory buttons. This function will erase previous memorized stations and store the newly searched stations. Once completed, the radio will scan for 5 seconds through each of the preset stations of either the AM or FM band and stop.  
  
Press this button to automatically preview all radio stations for 5 seconds.
- 5) **TUNE / SEEK Buttons**  
Under Radio mode, press the desired button momentarily to manually tune a station moving upward or downward. Press and hold a button and the radio will automatically seek the next available radio station. These buttons also function as Weather Band Channel 7 (162.550 MHz) access. Under weather band mode, pressing these buttons will select weather band channels 1-7.
- 6) **Auxiliary Input Jacks**  
The unit is equipped with a front panel 3.5mm auxiliary input (AUX 1) so you can connect your external portable audio player or portable satellite radio receiver. A second REAR (AUX 2) RCA jack is also included on the rear of the radio.  
  
\*It may be necessary to adjust the volume level of your portable device to achieve an optimal volume level.

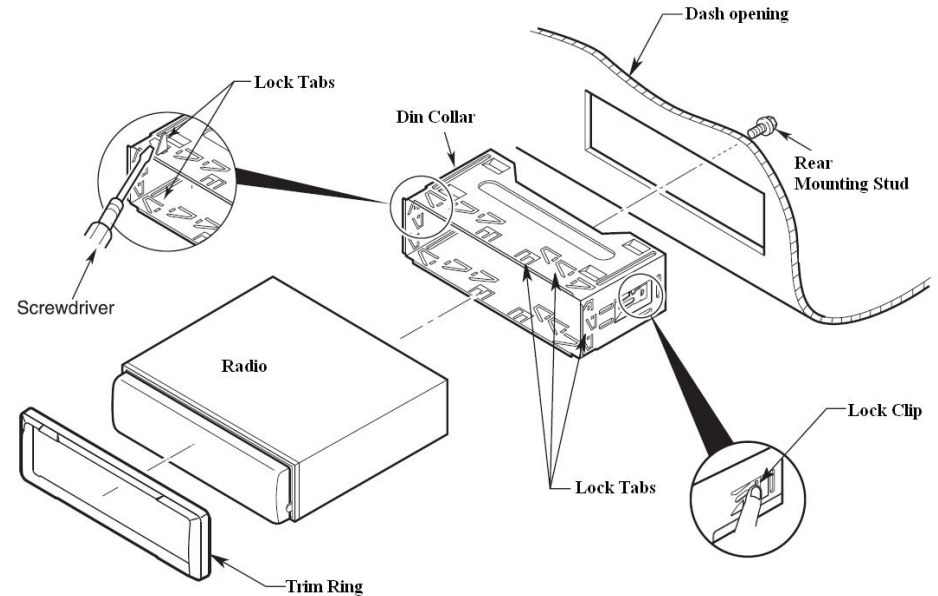
## REQUIRED RADIO DIMENSIONS

Verify the radio will fit by following the suggested dimensions below.



## RADIO INSTALLATION

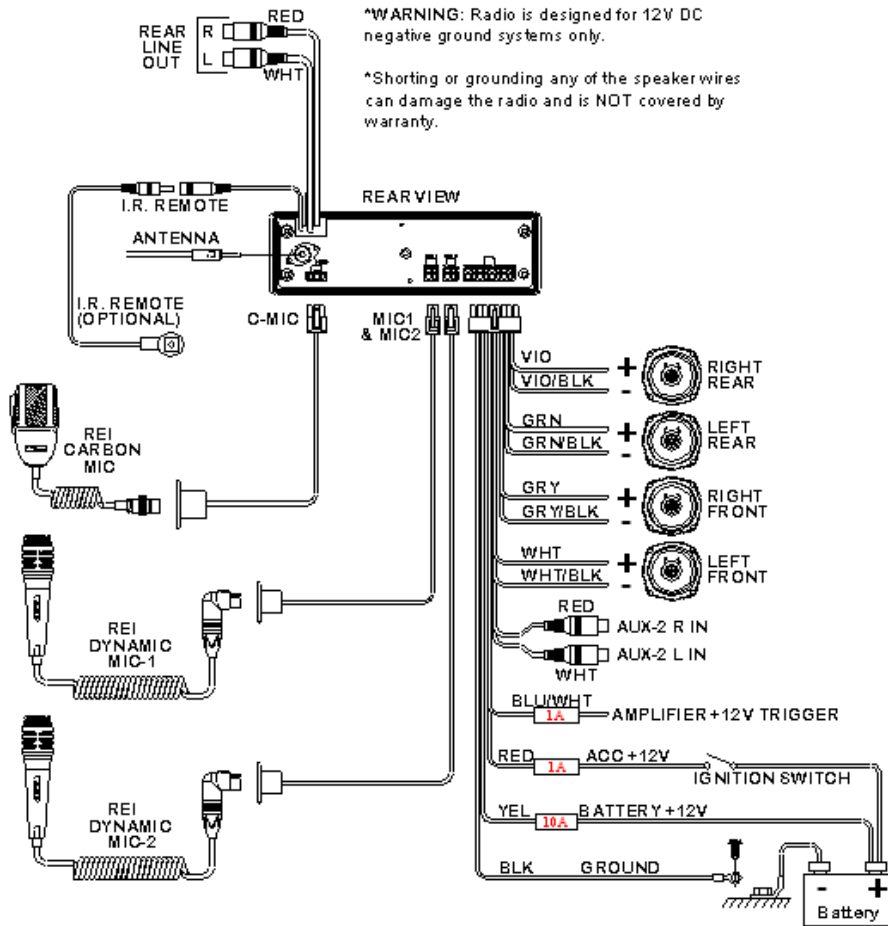
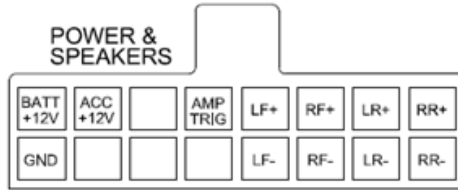
1. Verify lock Clips on the DIN collar are pressed inward. Place the collar into the dash opening. Bend the locking tabs outward as shown on the drawing below to secure into place in the Dash Opening.



2. Route all cable through the DIN collar and make all the necessary rear connections with the radio. Verify clearance; then gently insert the radio into the DIN Collar until both sides are locked. Secure rear mounting stud for additional support.

## RADIO CONNECTIONS

Follow this easy wiring diagram when installing. Be sure to disconnect the battery negative terminal before beginning.



- 7) Preset Memory/Recall Buttons  
Press one of these buttons momentarily to select preset station. Press and holding a button will preset the current station to the button being pressed.  
**\*\*Preset buttons are pre-assigned frequencies in Weather Band Mode.**

During media playback, use these buttons to scroll through available folders.

Press this button to PAUSE/PLAY the media.

**INT** Press this button to select INTRO ON/OFF.

**RPT** Press this button to change REPEAT ON/OFF.

**RDM** Press this button to turn RANDOM ON/OFF.

- 8) USB Input  
Insert a USB drive and the radio will automatically switch to USB input and begin playback.

**\*\*Note:** The unit's USB port does not support the Apple iPod or iPhone.

- 9) SD Card Input  
Insert the SD card and the radio will automatically switch to the CARD input and begin playback.

- 10) DISP Button  
If there is a malfunction of the unit, pressing the RESET button will clear the system. Press this button to change between Clock and Mode Information display.

**Setting the Time:**

Press this button momentarily to display the time. Next, press and hold this button until the hour display begins to flash. Rotate Volume/Select Knob to adjust the hour. Press the DISP button again, and the minute display will flash. Rotate Volume/Select Knob to adjust the minute. Press the DISP button to save the time on the LCD.

- 11) Reset Button  
If there is a malfunction of the unit, pressing the RESET button will clear the system.

## WEATHER BAND MODE

NOAA National Weather Radio Broadcasts from over 1000 locations throughout the U.S. on seven VHF/FM frequencies. Tune to receive continuous weather information 24 hours a day on one of the following frequencies.

- Press preset 1 to select weather band channel 1 - 162.400MHZ
- Press preset 2 to select weather band channel 2 - 162.425MHZ
- Press preset 3 to select weather band channel 3 - 162.450MHZ
- Press preset 4 to select weather band channel 4 - 162.475MHZ
- Press preset 5 to select weather band channel 5 - 162.500MHZ
- Press preset 6 to select weather band channel 6 - 162.525MHZ
- \*\*Press SEEK UP/DOWN to select weather band channel 7 - 162.550 MHz

It is possible to receive a very weak signal or no signal at all. Weather Band signals are just like AM & FM signals and are affected by weather conditions, obstructions, mountains, and valleys.

## RADIO SYSTEM MENU

- Press and hold the VOL/SEL button for 2 seconds.  
LCD will display MENU, make the desired selection below:

To change display SCROLL OPTIONS, rotate VOL/SEL, then press to choose:

- Scroll ONCE
- Scroll OFF
- Scroll ON

To enable the RDS option, rotate VOL/SEL, then press to choose:

- RDS ON
- RDS OFF

\*\*RDS operation is reserved for use on future versions

To save and exit, press and hold the VOL/SEL button.

Menu will exit automatically after 5 continuous seconds without saving the selection.

## RADIO STATION LOCK-OUT

Radio station Lock-Out gives Fleet managers the ability to restrict AM/FM playback. To enable operation, set acceptable stations into all the AM & FM presets. If only one station is allowed, preset that same station into all presets of either the FM or AM band. Once the stations are set, Press and hold both the VOL/SEL (2) and BAND (3) buttons for 3 seconds. The display will scroll "ENTER CODE", at which time the user can enter a personal 4 digit code using presets 1-6. Once entered, the display will show "LOCKED" giving the user confirmation. The user will have access to only the AM & FM stations found in presets 1-6. If the user attempts to change the station using the SEEK/TUNE buttons, the display will scroll "ENTER CODE".

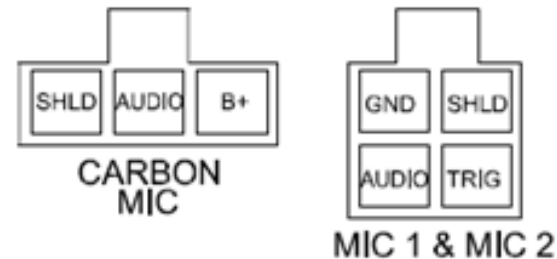
Entering the wrong code will scroll "ERR CODE". Once the user enters the correct code, the display will show "UNLOCKED" and restore the radio to normal operation.

## PA OPERATION (microphone sold separately)

The ST-4000 has three PA Microphone inputs, 2 Dynamic & 1 Carbon. All PA microphones have priority over other audio modes, and will MUTE the source audio being played when keyed. When a PA is triggered, the front display will show MIC 1, MIC 2 or MIC, until the trigger is un-keyed. Once released, it will return to the previous source mode at the previous volume level.

The Dynamic MIC 1 PA input is the Primary and the other PA input MIC 2 is the Secondary. When the two are keyed simultaneously, the MIC 1 PA microphone will always have priority over the MIC 2 PA.

All PA inputs operate regardless of radio power status, as long as both ACC and Battery power is applied to the radio. The volume levels of MIC 1 & MIC 2 can be independently adjusted from the radio's main VOL/SEL knob on the front of the radio. Once released, their final volume levels are stored into memory as default for the next time they are keyed. The volume levels of MIC 1 & MIC 2 can only be adjusted when they are keyed. The volume of the Carbon microphone, MIC, is only adjustable on the microphone itself and therefore its level is not saved. A rear view of the radio's PA pin connections are shown below:



## NOTE:

For easy viewing at night, the backlighting will always be on when ACC +12V switched power is applied. Backlighting will only shut off when the switched ACC +12V power is removed.