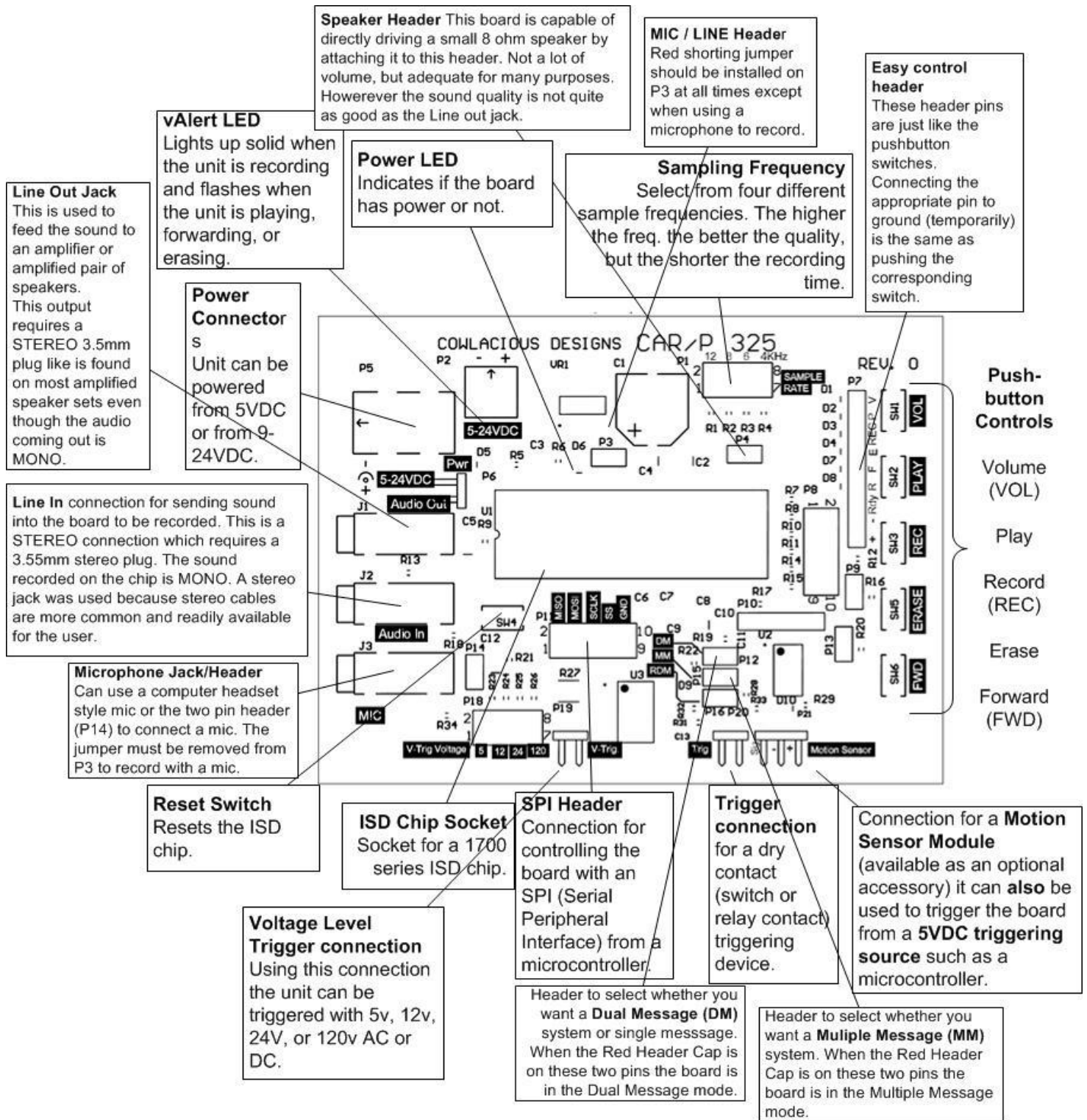




# CAR/P 325 Highlights



# Operation

## Making the power and audio connections:

- Place a 17xxx series ISD Chipcorder chip into the socket. Make sure the notch on the chip is facing the same way as the notch on the socket.
- Connect power to the POWER terminal block being careful to observe the polarity as marked on the circuit board or to the power barrel connector (if you purchased our matching power supply). You can use any DC power source from 5VDC to 24VDC. Plug a pair of amplified computer speakers into the LINE OUT jack.
- Connect the INPUT to any devices line out connection, i.e. the line out or speaker out of your computer, the line out of your CD Player, the Line Out of your tape deck, etc.



### **IMPORTANT!!!!**

Both the Line In jack and the Line Out jack should use a stereo plug as pictured above.

Or, remove the red shorting jumper from the Mic/Line-In header (P3) and connect an electret condenser microphone to the MIC header (P14). We sell a microphone on a 2 foot cable on our web site or you can supply your own. You can also use a standard computer headset microphone and plug it into the MIC Jack (J3).

Note: the unit will not accept a standard dynamic microphone.

## Push Button Controls:

### VOL (Volume)

Every time the volume button is pressed and released it changes the Line-Out and SPKR volume to one of eight volume levels. The volume levels go down and then back up in a loop, i.e. if you are on the highest volume setting (#8), the next time you press the button it will go down to the next highest volume setting (#7). Each press will take the volume down until you hit level #1, then it will start working its way back.

### PLAY

Pressing the play button will begin to play the sound that has been recorded. If you press the button during playback, it will pause the sound and wait to be pressed again to resume. It will resume at the start of the recording it was currently playing. The vAlert LED will flash during playback.

Note: This is not the same as the TRIG connection or the Motion connection. They are both controlled by the microprocessor that is on the circuit board.

### REC (Record)

Pressing and holding the REC button allows the user to record sound to the ISD17xxx series chip that is in the socket of the circuit board. Releasing the button ends the recording. The vAlert LED will remain on during the recording. To record another message, just repeat the same steps. The unit will continue to allow recordings until all of its memory is used up.

### ERASE

Briefly pressing the ERASE button will erase the current recording and the vAlert LED will briefly flash. Holding down the ERASE button down for approx. 10 seconds will erase all messages on the chip. The vAlert LED will flash briefly, then stop, then flash again indicating that all the messages have been erased. **Note: It is sometimes necessary to hold the ERASE button down for the 10 seconds to help reset a scrambled chip.**

## FWD (Forward)

Briefly pressing the forward button will forward the message pointer to the next message. The forward button works in a loop. If the unit is currently on the last message and you press FWD, then it will forward to the first message (if there are multiple messages). If you press play it will play the current message. If you press FWD while the current message is playing it will skip to the next message (if there is one) and begin to play it. If you press REC after pressing the FWD button, it will record a new message that follows the last message that was recorded.

## Recording audio to the chip:

1. Before starting:
  - a. If it is connected, disconnect the red shorting jumper from the DM header.
  - b. Disconnect any triggering devices or red shorting jumpers on trigger inputs, such as, the Trig. header and/or the Motion header.
  - c. Choose the recording quality for your device by setting the FREQ. jumper to the desired quality. 12KHz is the highest quality, but shortest recording time. 4KHz will give you the longest recording time, but the poorest quality. The jumper must be on one of the settings or the unit will not record or playback.
2. Start the audio source. You should be able to hear the audio through the speakers which you have connected. Remember to turn those speakers on and adjust their volume to a level your comfortable with.

**Disconnect or turn off the speakers if you are using a microphone or you will hear feedback from the speakers while you try to record.**

3. Press and hold the REC button to start the recording process. You should see the vAlert LED turn solid red while you are recording. You must hold the button down during the entire time you want it to record. When finished recording release the record button.

4. To test your recording, unplug the cord going to the Line-In jack and then press PLAY. It should immediately start playing what you recorded. The vAlert LED should blink during the entire playback time.
  5. The output volume from the CAR/P 300 board can be adjusted by briefly pressing the VOL button. Each time you press the button it will change the level. There are eight different volume levels that it loops through. While you are listening to a recorded message you can hear the volume level change each time you press the VOL button.
  6. You may find it necessary to adjust the level of the audio feeding the Line-In jack. If it is too high it will cause the recording to sound to be garbled and clipped. If the level is too low it will be hard to hear what you have recorded.
  7. Setting the recording volume level:
    - a. If the volume level from your source audio was too low, you may not hear anything when you press play or it may be very faint. Turning up the volume from your source will solve this problem. The VOL button on the CAR/P 325 board has nothing to do with the recording level. The VOL button only controls the output volume.
    - b. If the volume level from your source audio was too high then you may hear distorted or partially clipped sound. Reducing the volume from your audio source will solve this problem.
    - c. It may take a little experimentation, but setting the volume level of your source as loud as you can without getting distortion in your recording is the optimum level.
- Multiple message recording:
- Complete steps 1 through 4 above.
  - Start the audio for your second message and then press and hold the REC button until you are done recording your second message.
  - To test your recording, unplug the cord going to the Line-In jack and then press and release PLAY. It should immediately start playing what you recorded as the second message. To hear the

first message press and release the FWD button and then press and release the PLAY button. You should hear the first message you recorded being played back.

- The FWD button works in a loop, so each time it is pressed it skips to the next message. If it is currently on the last message then it skips to the first message.

#### □ Erasing your message(s):

- To delete a single message
  - Press the ERASE button briefly to delete the current message. You will see the vAlert LED flash briefly. If you have multiple messages, briefly pressing the ERASE button will only delete your current message.
- To delete all messages
  - Press and hold the ERASE button down until the vAlert LED has stopped flashing and has turned solid.

## **Triggering Sound Playback:**

This unit can be triggered to playback recorded sounds through three different input triggers.

### **TRIG.**

The TRIG input allows the unit to be triggered by any switch like device, such as, a switch, relay contacts, a mat switch, etc. It is not designed to have any voltage go to the trigger pins. The provided white and black wire with the two pin header plug allows the user to easily connect their device to the TRIG header pins.

### **V-Trig**

The V-Trig input allows the unit to be triggered by a voltage level trigger such as, a 5v output from a microcontroller, a 9-12 volt battery, a 24 volt power source, or 120V outlet or output from a 120V motion sensor.

The trigger voltage can be AC or DC. The polarity (which pin is positive or which is negative) does not matter to the trigger connection.

YOU MUST set the jumper on red shorting jumper at J10 to the voltage level you are going to use.

## Motion

The motion detector pins are designed to be used with any of the optional motion detectors we offer for sale. This connection also provides power to our motion sensors.

## Trigger Message Modes

### Regular Mode

No red shorting jumper on the DM or MM header pins.

The unit will play the current sound when it is triggered via the Trig, V-Trig, or Motion trigger connections. If the trigger is still active when it reaches the end of the message the unit will stop playing and wait for the trigger to become inactive before it will allow itself to be triggered again.

### Dual Message Mode (DM header)

Red shorting jumper is on the DM header and no shorting jumper is on the MM header.

This mode allows the unit to play the first message continually until the unit receives a trigger. As soon as a trigger is received it skips to the next message on the chip and plays it. When the trigger is over it goes back to playing the first message on the chip. You can only have two messages recorded on the chip for this mode to work properly.

This mode can also be used if you want a **single message to continually repeat**. Use a chip that only has one message recorded on it and don't connect any triggering devices. The unit will continually play the message.



## Multiple Message Mode (MM header)

Red Shorting jumper is on the MM header and no shorting jumper is on the DM header.

This mode will loop through all the messages that are recorded on the ISD chip. One message will be played each time it is triggered. After it plays the last message it will jump back to the first message. The Trigger must be released before it can be triggered again.

## Special Connections:

### SPI (Serial Peripheral Interface) Connections:

This board is equipped with an SPI connection header that allows all chip functions and registers to be controlled by a microcontroller feeding it commands over the SPI connection. The manual for controlling the board through the SPI header connection is available on our web site at:

[www.cowlacious.com/Support.htm](http://www.cowlacious.com/Support.htm)

### Easy Control Header (P7):

This connection allows remote switches to control the board or a microcontroller to control the board as if the buttons on the board were being pressed. Bringing the corresponding button pin to ground is the same as pressing the corresponding button. This is how the microcontroller on the board is controlling the chip, so it may be necessary to remove the microcontroller from its socket for the user to control the sound chip with another microcontroller or device.

V	VOLUME - A LOW to this pin will step the unit to its next volume level.
P	PLAY - A LOW to this pin will PLAY the current message.
REC	Hold this pin LOW to record your message.
E	ERASE - A LOW to this pin will ERASE the chip.
F	FWD - A LOW to this pin will FORWARD to the next message.
R	Reset - A LOW to this pin will reset the unit.
RDY	(This pin is low during record, playback, and erase, but is high any other time. It can be used to detect when a message is done playing.
(-)	Ground
(+)	5V+ from the regulator

## **To initialize a chip**

All the chips we sell have been initialized for use with our boards. If you purchase your ISD chips from a different source then you may need to use the built in initialization feature on the board.

1. Place an ISD17xxx series chip in the socket on the board.
2. Place shorting jumpers (not supplied, but available through us) across each set of pins on the SPI Header (just to the left of the reset button).
3. Place a shorting jumper on the P13 header.
4. Power up the board.
5. Wait 15 seconds
6. Remove power from the board and remove the all the shorting jumpers from the SPI header and the P13 header.
7. The chip is now ready to use.

## **Recording Hints and Tips:**

Problem – the sound is distorted.

This unit is capable of recording fairly good quality sound, but a lot depends on the quality of the input signal and how loud the input signal is. If your input signal is too loud you will hear distorted sound when you play it back. If it is only a little too loud then you will only hear distortion at the loudest portions of the recording.

Solution:

Turn the input signal down by adjusting the volume of the audio coming from your source device (i.e., computer, CD player, etc.) and repeat the steps to record sound onto the chip. Continue to do this until you get the signal level low enough that you don't hear any distortion in the sound when it is played back. To get the best possible sound out of this device you want the input signal to be as loud as possible without causing any distortion.

Problem – the sound level is too low.

This unit is capable of recording fairly good quality sound, but a lot depends on the quality of the input signal and how loud the input signal is. If your input signal is too soft you will hear hissing type sounds along with your recorded sounds when you play it back.

Solution:

1. Make sure the audio cables are properly pushed into their connectors. If they are loose, try recording your sound again.

Or, if the connections are okay, then

2. Turn the input signal up by adjusting the volume of the audio coming from your source device (i.e., computer, CD player, etc.) and repeat the steps to record sound onto the chip. Continue to do this until you get the signal level high enough that you hear good clean sound when it is played back. To get the best possible sound out of this device you want the input signal to be as loud as possible without causing any distortion.

### Playback hints and tips:

If you would like to repeat the sound over and over again, then connect the red header jumper across the DM header. Connecting the two pins of the DM with the RED JUMPER will cause the unit to start playing. It will continue to repeat the recording until the red header jumper is removed. It will then finish the sound it is currently playing and stop.

### Recording Times for ISD17xxx chips:

Sample Freq.	ISD 1740	ISD 1750	ISD 1760	ISD 1790	ISD 17120	ISD 17150	ISD 17180	ISD 17210	ISD 17240
12KHz	26 Secs	33 Secs	40 Secs	60 Secs	80 Secs	100 Secs	120 Secs	140 Secs	160 Secs
8KHz	40 Secs	50 Secs	60 Secs	90 Secs	120 Secs	150 Secs	180 Secs	210 Secs	240 Secs
6.4KHz	50 Secs	62 Secs	75 Secs	112 Secs	150 Secs	187 Secs	225 Secs	262 Secs	300 Secs
4KHz	80 Secs	100 Secs	120 Secs	180 Secs	240 Secs	300 Secs	360 Secs	420 Secs	480 Secs

## Accessories:

**Dual Relay Board** - We sell a dual relay board that can be connected to the CAR/P325 that will trigger the relay whenever audio is playing. The relay can be used to turn on/off a light, solenoid, or other electrical device that you would like to turn on or off whenever audio is playing.

**Motion Sensor** – We sell motion sensors that plug onto the CAR/P325 board that allow the sound to be triggered by motion.

Thank you for buying a Cowlacious  
Designs product!  
Please don't hesitate to contact us if  
you have any questions.



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