ZEPHYRUS
ELECTRONICS, LTD

300 SERIES
Satellite Radio &
Data Products

ZEPHYRUS ELECTRONICS, Ltd

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Z ZEPHYRUS

Thank you for using our equipment. We will do our best to earn your continuing confidence in Zephyrus and our products. Any time you need information or help, give us a call at 918-437-3333 (US).

It's a good idea to look the equipment over for any shipping damage as soon as it is received. If damage is discovered, contact and file a claim with the freight company. They are responsible to you.

We hope it doesn't happen, but if you ever have a problem that requires you to send equipment back to us for repair or replacement, _**Please pack a note in with the device. Give us as much information as possible;--**_ what the problem is and anything you can tell us that might help solve it. Customer feedback is the last line and a very vital part of our overall quality control.

It will also help both of us if you will get an RMA number from the service technician you are talking with. We will certainly accept products for service without a number, but any notes that the tech makes in his phone calls with you might not get tied to your unit when it gets here.

Our Limited Warranty is as follows:

We will fix or replace any product that is defective within One year (Australia) after you receive it. We won't cover damage from accident or misuse. Warranty is FOB the factory or our servicing distributor. Our responsibility is limited to repair or replacement only and no other expenses or consequential damages. No other warranties apply.

Whether your warranty has expired or not, customer support and assistance is the backbone of our business. Our managment has a background in broadcasting, so we understand the seriousness of "equipment down." We'll do all we can. --Your referral to a friend might even be our next sale!

304 Mainframe

Refer to Figures 1 & 4

Physical: The 304 Mainframe occupies one 1 3/4" space in a standard 19" equipment rack. Total depth is 15 1/2". Additional depth needs to be provided to allow for cable bends. Weight is 10 pounds. A removable smoked transparent front panel permits access to the front of circuit cards.

Electrical: The 304 requires 117 V, 60 Hz AC power. It contains an unregulated positive and negative power supply for operation of up to four standard width 300 series circuit boards. A Crowbar power shuts down voltage to the LNB in the event of a short circuit in the coax line. *To restore power the load must be fully disconnected temporarily or the 304 power must be turned off for a few seconds.* **Replace the fuse with a 1/2 amp slow blow only.**

Circuit Boards: The 304 has spaces for four standard width boards. However, each 304 mainframe can hold only one 391 or 392 satellite baseband receiver. Other cards can be of any mix. The 383 tone decoder is a double-wide board and occupies two spaces.

Back Panels of the 304 vary with the circuit board requirements. Factory installed cards are labeled on the rear panel. Stickers are furnished for labeling of boards added in the field.

Interconnect Power Cables : Three different interconnect jumpers are used within the 304. They are as follows:

Application	Color	Voltage
Board	Red	+18 unreg
power	Brown	Gnd
interconnect. Violet	- 18 unreg	
LNB Power	Red	+18 unreg
Tuner Power	Orange	+12 regulated
Tuning Voltage White	variable positive	

   (*Wires to Tuner.* Red is from power supply board. Orange and White run from the satellite receiver card)

Power to 391 or	Red	+18 unreg
392 Satellite Yellow	+28 tuning voltage supply	
Receiver card.	Brown	Gnd

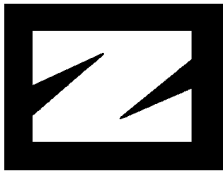## ZEPHYRUS 388 "Subaudible" Tone Encoder/ 383 Decoder System

SUMMARY

The 304-388-15 Tone Encoder package is a composite grouping of two Zephyrus 389 tone encoder card units with one dedicated to each of the two audios in a stereo stream. 25 and 35 Hz cue tones are generated on each channel.

The 25 Hz tones represent the LSB's and the 35 Hz the MSB's to form a 4-bit binary code. A binary diode matrix on the 388 Matrix card causes tones to be generated per the following truth table:

LEFT CHANNEL	RIGHT CHANNEL	RELAY
25		1
	25	2
25	25	3
35		4
25/35		5
35	25	6
25/35	25	7
	35	8
25	35	9
	25/35	A
25	25/35	B
35	35	C
25/35	35	D
35	25/35	E
25/35	25/35	F

The 383 decoder routes each audio channel through a high pass filter to remove the tones and prevent a flutter sound that can result from audio intermods in amplifier/speaker systems. The decoded tone pattern is used to produce the series of 15 different relay closures. The contacts from each relay are available on "snap" contacts on the rear of the card.

An optional BCD output is provided with a 9 pin "D sub" connector on a pigtail from the rear of the unit. Pin order representing from the MSB to LSB are: 5, 4, 3, 2 with pin 1 common.

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304-388-15 and 383 "Subaudible" TONE SYSTEM

The 304-388-15 Tone Encoder package is a composite grouping of two Zephyrus 389 tone encoder card units with one dedicated to each of the two audios in a stereo stream. 25 and 35 Hz cue tones are generated on each channel.

The 25 Hz tones represent the LSB's and the 35 Hz the MSB's to form a 4-bit binary code. Refer to the 389 Tone Encoder sheet for the truth table of the tones on each channel.

A common binary diode matrix on the 388 Matrix card causes tones to be generated per the truth table shown on the "383-15 TONE DECODER READ OUT DISPLAY" sheet, attached.

The 383 decoder routes the audio channels through a high pass filter to remove the tones and prevent a flutter sound that can result from audio intermods in amplifier/speaker systems. The decoded tone pattern is used to produce a series of 15 different relay closures. The contacts from each relay are available on "snap" contacts on the rear of the card.

An optional BCD output is provided with a 9 pin "D sub" connector on a pigtail from the rear of the unit. Pin order representing from the MSB to LSB are: 5, 4, 3, 2 with pin 1 common.

ma388enc.sam

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389 TONE ENCODER

OVERVIEW: The 389 filters program frequencies below 50 Hz off the audio signal to preclude false triggering in your customer's tone decoders. It generates 25 and 35 Hz tones with a frequency accuracy of better than .01%.

Audio frequency response is flat down to 60 Hz, down about 1 db at 50 Hz and drops rapidly below 50.

The 389 occupies one slot of a 304 mainframe. Front push buttons activate tones as shown in Figure 389-1.

FIGURE 389-1	FIGURE 389-2
Front Panel Controls	Rear Panel Connections
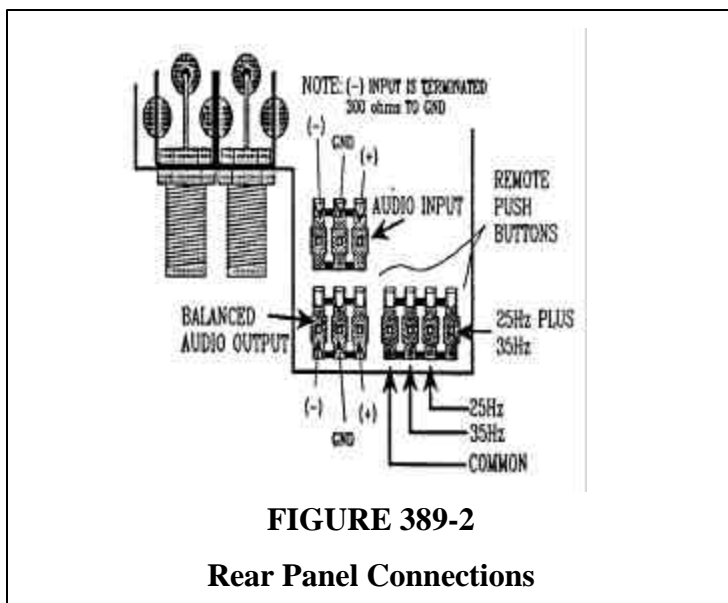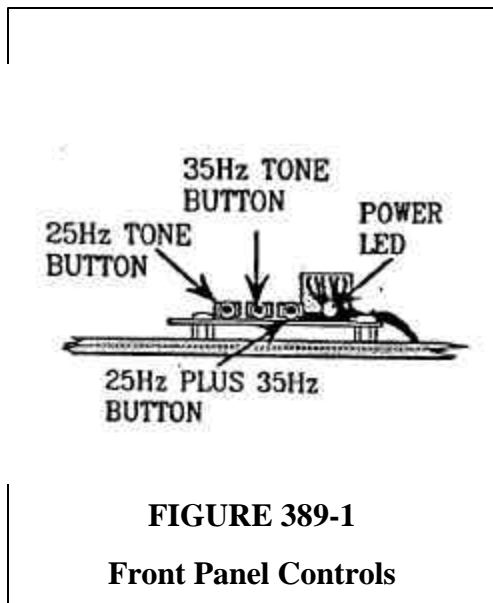
Contacts are provided at the rear of the card (Figure 389-2) for remote push-bullon operation or custom logic control. "Common" is ground. Control activations can be logic lows capable of sinking 2 ma.

The 389 is shipped set up for program audio levels of Zero dbm in and out. Higher levels can be tolerated without distortion but the amplitude ratio of program audio to tones will be incorrect.

Cue tone output is set to zero dbm. Cue tone duration is approximately 1.5 seconds.

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Model 304-383-15-BCD TONE DECODER OPTIONAL BCD OUTPUT TRUTH TABLE
9 PIN D SUB CONNECTOR

Relay # 1 = 2
Relay # 2 = 3
Relay # 3 = 2,3
Relay # 4 = 4
Relay # 5 = 2,4
Relay # 6 = 3,4
Relay # 7 = 2,3,4
Relay # 8 = 5
Relay # 9 = 2,5
Relay # 10 = 3,5
Relay # 11 = 2,3,5
Relay # 12 = 4,5
Relay # 13 = 2,4,5
Relay # 14 = 3,4,5
Relay # 15 = 2,3,4,5
PIN#1 = COMMON

NOTE:

Molex Pins and connectors have been provided for the input and output contacts. Pin and connector part numbers are: 08-50-0106 & 09-50-30xx respectively, and are to be used with the crimper tool 11-01-0026 or equivalent.

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