

TABLE OF CONTENTS

Page Number

I. Systems Hardware and Installation

A: VF-1 VOICELIFT™ Card frame	
1. A Series Input Cards	2
2. B Series Throughput Cards	2
3. C Series Output Cards	2
4. VF1-8x8™ Feature Card	
5. Front View Card Diagrams	3
6. Installing the VF-1 Card frame	4
B: Ceiling Hardware	
1. SCM-2 Microphones	5
2. SPK-1 Loudspeakers	6
3. BB-1, 2, 3 Back Boxes	
4. BF-1, 2, 3 Baffles	6
5. CP-1, 2, 3 Mounting Templates	6
6. MB-1 Mounting Bar	6
C: Power Supplies	
1. SPS-7 (VOICELIFT™ 1 RU Supply)	6
2. WPS-1, AudioLink™ Power Supply	6
3. WPS-8/15, Series II AVT-24™ Power Supply	6

II. System Tuning Procedures

A: System Tuning Overview	7
B: Energizing the Systems	7
C: Balancing the Microphone Pairs	7
D: Equalizing the VOICELIFT™ System (Using Notch Filters)	8
E: Fine Tuning System Gain	11

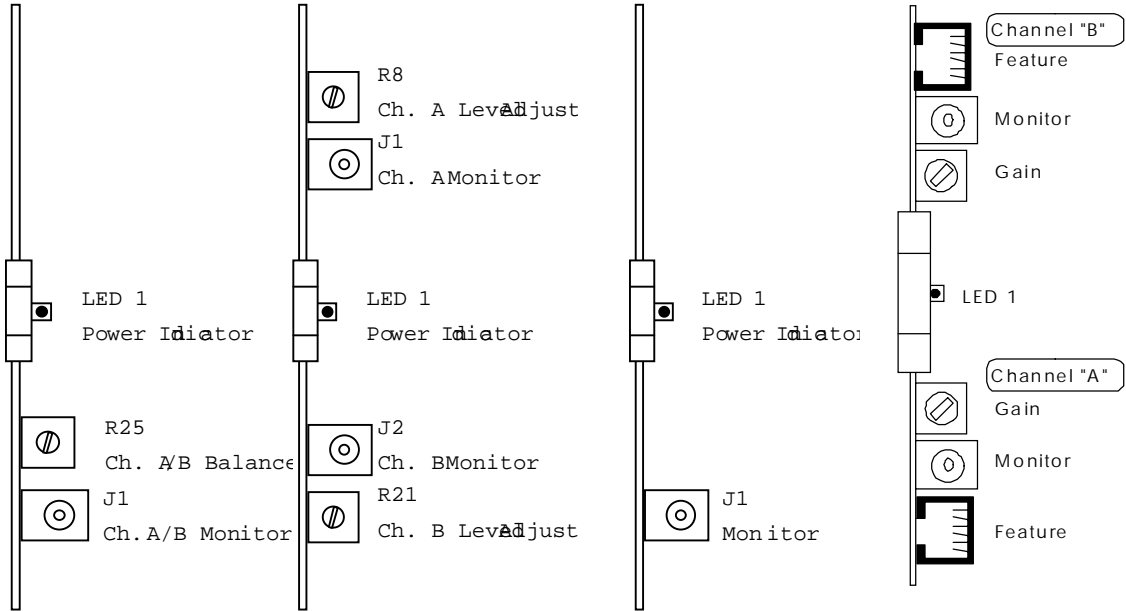
Note: Further information is available on the Series II AVT-24™, AUDIOLINK™, AUDIOLINK PLUS™, SCM-2, ASP-8x8 DIGITAL MATRIX™, VF1-8x8 Feature Card, VOICELIFT™ equipment and systems from SCT and on our web site [www.soundcontrol.net](http://www.soundcontrol.net). SCT holds in-house training sessions and participates in industry continuing education programs. Please contact SCT for more details.



### I. Systems Hardware and Installation (continued)

#### A: VF-1 Audio Card frame - (continued)

#### 5. Front View Diagrams

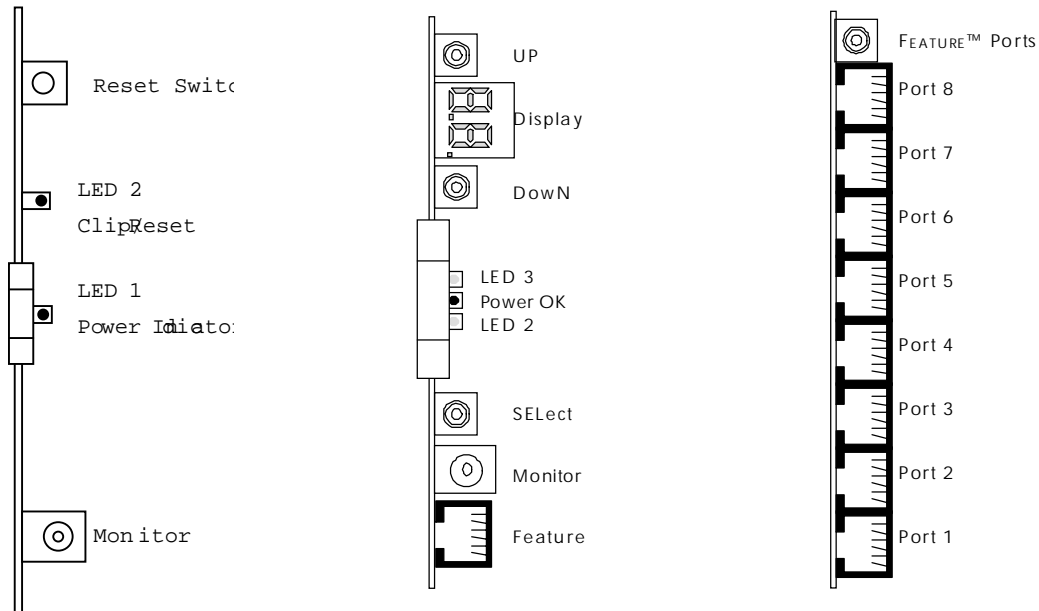


"A2-1" Microphone Preamplifier

"A5" Dual Channel Line I/O

"A6" Single Channel Line I/O

"A7" Dual FEATURE™ Line I/O



"B6" Nine Frequency Automatic Notch Filter

"C2-2" Power Amp w/FEATURE™ Connection

VF1 FEATURE™ Card VF1-8x8 DSP Digital Matrix

### I. Systems Hardware and Installation (continued)

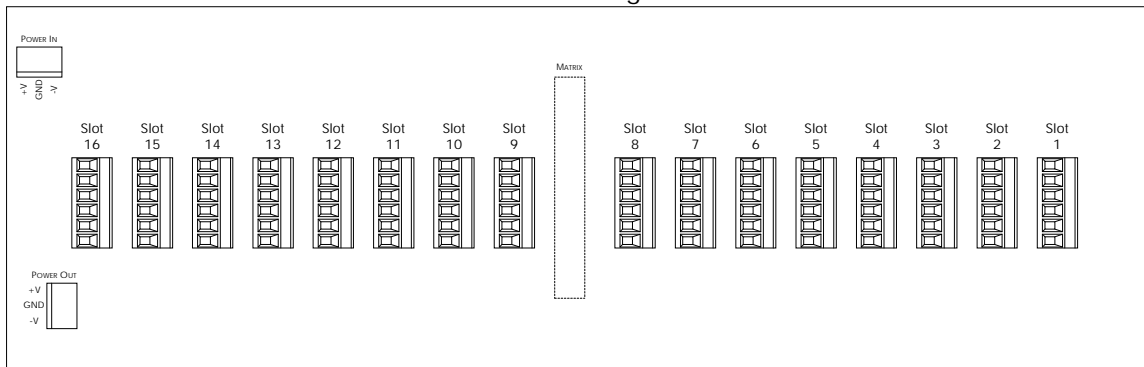
#### A: VF-1 Audio Card frame - (continued)

##### 6. VF-1 Card frame Installation

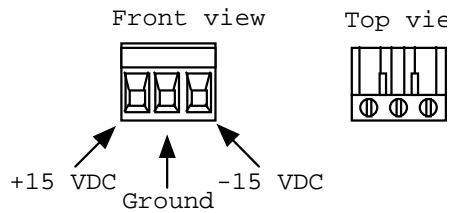
VF-1 Card frames are shipped from the factory tested with all Input, Throughput and Output cards installed in conjunction with a custom programmed analog Matrix Card. If two or more VF-1 card frames are used in the system, complete inter-frame wiring is included with all connections labeled. The only terminations required "on sight" are Microphone wires, Speaker wires, and Auxiliary Send and Receive lines, if any. (E.G. Audio Playback or Record Out.) All terminations are clearly designated on a custom pin-assignment schedule that is included in complete system documentation.

All connections are made via polarized, "captive wire" connectors on the back of the card frame. Looking at the rear of the frame, the card slots are numbered 1-16 from right to left. The pin connections for various cards are listed below.

Rear View VF-1 Matrix Signal Card Frame



#### ±15 VDC Power input connection



#### Pin assignments by card type

PIN	A2-1	A5 (2 CH.)	A6 (1 CH.)	A7 (2 CH.)	B6	C2-2
	MICROPHONE INPUT	LINE I/O SWITCHED	LINE I/O SWITCHED	LINE I/O W/FEATURE	NOTCH FILTER SWITCHED	POWER AMP W/FEATURE
1	CH. 1 (+)	CH. 1 (+)	CH. 1 (+)	CH. 1 (+)	N/C	OUT (+)
2	CH. 1 (-)	CH. 1 (-)	CH. 1 (-)	CH. 1 (-)	N/C	SWITCH 2
3	SHIELD	GROUND	GROUND	GROUND	GROUND	N/C
4	CH. 2 (+)	CH. 2 (+)	CH. 2 (+)	CH. 2 (+)	N/C	N/C
5	CH. 2 (-)	CH. 2 (-)	CH. 2 (-)	CH. 2 (-)	N/C	SWITCH 1
6	GROUND	SWITCH	SWITCH	SWITCH	SWITCH	GROUND

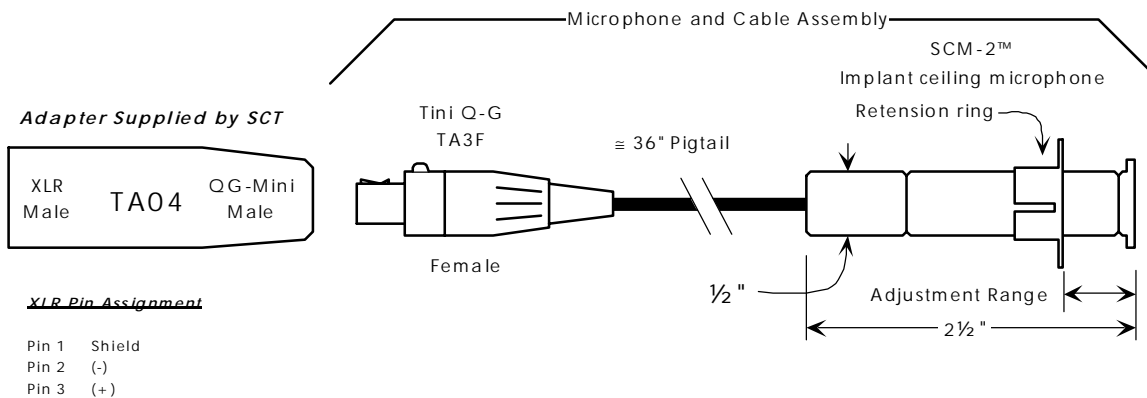
### I. Systems Hardware and Installation (continued)

#### B: Ceiling Hardware

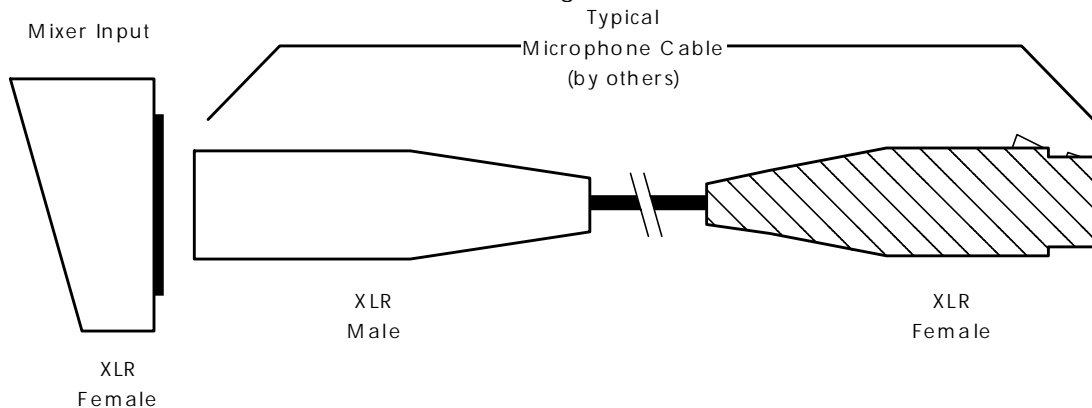
##### 1. SCM-2 Electret Condenser Microphone

Designed to be installed in any flat, hard surface, the SCM-2 is ideally suited for conference or boardroom sound systems. Features include flat response and uniform hemispherical coverage when mounted in ceilings or walls. The SCM-2 is supplied with a pressure fit flanged retaining ring for a simple, unobtrusive installation.

Standard assembly of SCM-2 microphone components



SCM-2 home run wiring to mixer/card frame



**I. Systems Hardware and Installation (continued)****B: Ceiling Hardware – (continued)****2. SPK-1 Four-Inch Loudspeaker**

Designed for flat, uniform speech reproduction when used in a ceiling mounted reinforcement system, the SPK-1 is an economical and simple to install sound solution.

**3. BB-1, 2, 3 Speaker Back Boxes**

Intended to be used with the SPK-1 listed above, the back box provides rear sound isolation, easily mounts in acoustic or plaster ceilings. Our back boxes are customized with passive sound attenuation pads to eliminate back box ringing.

BB-1 is used in 1 x 1 acoustic concealed spline ceilings

BB-2 in 2 x 2 and 2 x 4 drop ceilings

BB-3 in plaster

**4. BF-1, 2, 3 Speaker Baffles**

Perforated baffle used with speakers and back boxes listed above. May be painted to match ceiling color. To be used with above matching Back Boxes.

**5. CP-1, 2, 3 Mounting Templates**

Above microphones and loudspeakers are to be mounted in a precise relationship to each other when used with VOICELIFT™ and TELEPLEX™ systems to insure maximum gain before feedback. Templates are provided with each system to be used by the sound contractor during installation in conjunction with above matching Back Boxes and ceiling styles. Additional templates are available from SCT.

**6. MB-1 Mounting Bar**

Can be used when mounting an SPK-1 Speaker in a 2 x 4 ceiling panel when not using the SCM-2 Microphone.

**C: System Power Supplies****1. SPS-7 Regulated Power Supply**

The SPS-7 is a 115 VAC; 60Hz input regulated D.C. power supply. The power supply provides  $\pm 15$  VDC at 3.5 A. per side. The SPS-7 mounts in 1 Rack Unit of space. Three locking, polarized D.C. connections are provided, along with two switched convenience A.C. outlet. On request, SPS-7 is available for 230VAC, 50Hz.

**2. WPS-8/15 Plug-In Power Supply**

The WPS-8/15 is a universal A.C. input power supply that is used to power the Series II AVT-24™ teleconferencing interface and ASP-8x8 AUDIO MATRIX™. The power supply provides +5 VDC @ 3.5 A and  $\pm 15$  VDC @ 200 mA.

**3. WPS-1 Plug-In Power Supply**

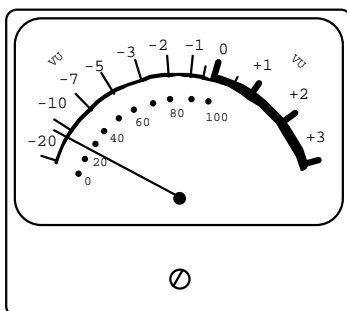
The WPS-1 is a 110 VAC 60 Hz input power supply for use with the AUDIOLINK™. The power supply provides 28 VAC CT at 1.3 Amps.

### II. System Tuning Procedure

#### A: System Tuning Overview

VOICELIFT™ and TELEPLEX™ systems require a relatively simple set up and tuning sequence to be brought up to optimum performance. Some of the steps are common to both types of systems and others are specific to either VOICELIFT™ or TELEPLEX™ systems.

**Tools required:** (1) A small tuning wand or screwdriver, (2) a Pink Noise source and (3) an accurate ANALOG voltmeter with .1-volt resolution. Analog meters are preferred over digital for their “nulling” capability. It’s easier to track a moving needle responding to pink noise than a rapidly changing digital display.



Typical VU Meter Showing both “Volume Unit” Scale and Percent

The normal tuning sequence is:

Paragraph

- ◆ Energize System II. B
- ◆ Balance Microphone Pairs II. C
- ◆ Equalize VOICELIFT™ System Using Notch Filters II. D

#### B: Energizing the System:

Energize the system after confirming that all signal and grounding connections have been made. Improper grounding can create disruptive and elusive ground loops leading to system oscillation.

The illuminated POWER switch is located on the front of the Power Supply.

#### C: Balancing and Phasing Microphones

##### 1. Instrumentation Required

Input: Pink Noise Generator, 60 Hz - 6 kHz

Output: Leader AC millivoltmeter, SCT ALM-1 (or equivalent), true VU reading meter and/or oscilloscope.

NOTE: A dial type meter should be used for all “Null” readings in order to “average” the Pink Noise signal being monitored.



II. System Tuning Procedure (continued)

C: Balancing and Phasing Microphones – (continued)

3f. Testing Microphone Pairs for Correct "Out of Phase" Wiring

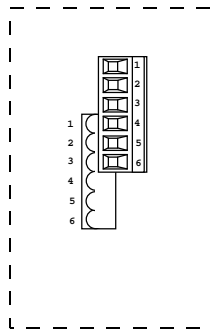


Figure 3fA

Contractor Plug Pins 4, 5 & 6  
Connected to Back Plane Pins 1, 2 & 3

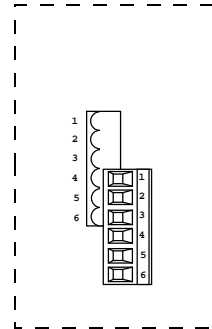


Figure 3fB

Contractor Plug Pins 1, 2 & 3  
Connected to Back Plane Pins 4, 5 & 6

- g. Move the contractor plug of the microphones so that the Channel 1 microphone is now feeding the Channel 2 input (Figure 3fB). Note the level on the meter. (Pins 1, 2 and plug are now connected to pins 4, 5 and 6 of the backplane connector.)
- h. Compare the level of the paired microphones to the level of each individual microphone. If the paired microphone level is lower than the individual levels, the microphone pair is wired correctly, out-of-phase.
- i. If the paired microphone level is higher than the individual levels, the pair of microphones is wired incorrectly, in-phase. The microphone wiring should be rechecked and changed accordingly.
- j. Repeat steps a through i above for each remaining pair of microphones.
- k. Reconnect all microphones to correct plug locations.

4. Balancing Microphone Pairs

- a. Reduce the level on all amplifier output cards (C2-2 Cards) using the DOWN button.
- b. With all microphone wires on the back of cage labeled, remove all microphone contractor plugs except for the pair of microphones being balanced.
- c. Set the AC millivoltmeter to the 1-volt scale. Connect the leads to the RCA jack marked "Monitor" on the microphone preamp card (A2-1) associated with the pair of microphones being balanced.





NOTES: