

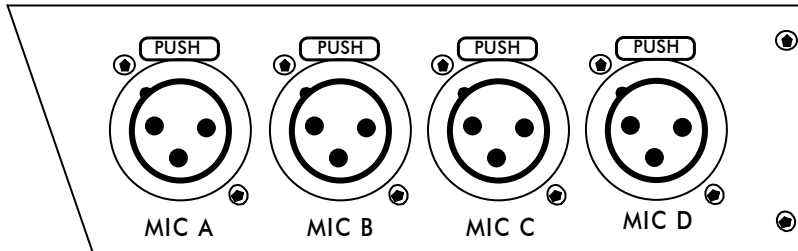
PLEASE READ CAREFULLY PRIOR TO INSTALLING AVT-44™

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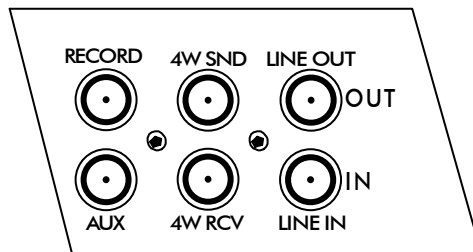
I. Wiring The AVT-44™

The AVT-44™ provides for both microphone inputs and line level inputs into the system. Up to four condenser type microphones can be connected directly to the AVT-44™'s rear XLR connectors.



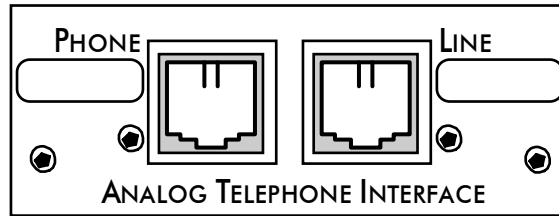
Rear view of the AVT-44™ XLR connectors.

All line level audio connections to the AVT-44™ are made to the rear of the unit via "RCA" type connectors and are clearly marked.



Rear view of the AVT-44™ "RCA" connectors.

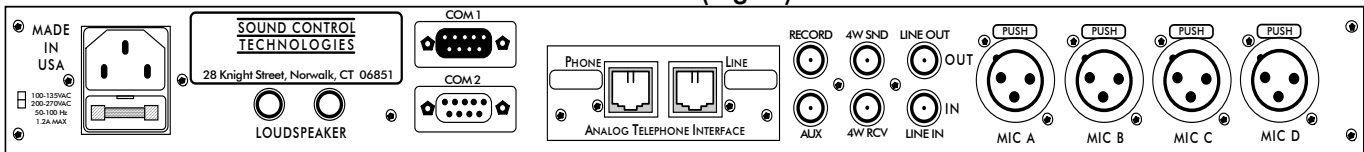
Using the AVT-44™ in the 2-wire mode requires a standard analog telephone line or voice quality analog extension from an "in-house" telephone system. The main telephone line connects to the RJ-11 modular connector labeled "Line". For dialing and ringing of incoming calls, a telephone may be connected to the RJ-11 modular connector labeled "Phone", or these functions may be accommodated via the RS-232 ports.



Rear view of the AVT-44™ RJ-11 telephone connections.

When used in conjunction with SCT Systems, all set up, (including room notching procedures for VOICELIFT™ Systems) wiring check-out and microphone balancing procedures must be thoroughly completed prior to AVT-44™ start up.

REAR VIEW AVT-44™ (Fig. 1)

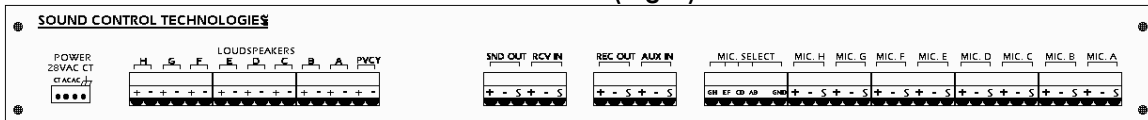


Audio Levels

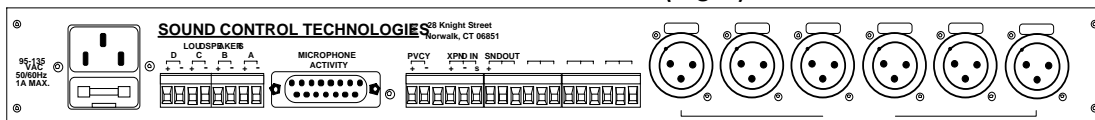
All line level audio inputs to the AVT-44™, ("LINE IN", "4-WIRE RCV. IN" and "AUX IN") are designed for a nominal -6.8 dBm (1V peak to peak) signal.

FOR AUDIOLINK™ and AUDIOLINK PLUS™ SYSTEMS:

REAR VIEW AUDIOLINK™ (Fig 2)



REAR VIEW AUDIOLINK PLUS™ (Fig 3)



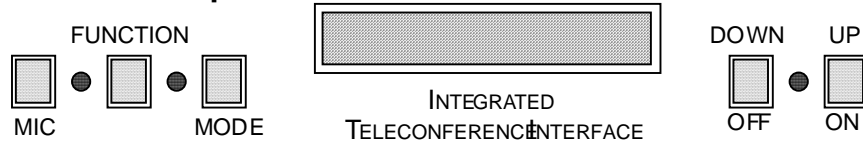
Interfacing the AUDIOLINK™ and/or AUDIOLINK PLUS™ for additional microphone and loudspeaker support is done through "Room Rcv. Out" and "Room Send In" on the AVT-44™.

"LINE Out" on the AVT-44™ connects to "RCV IN" on the AUDIOLINK™ or AUDIOLINK PLUS™ for the distant party's signal to reach the loudspeakers.

The microphone signal from the AUDIOLINK™ or AUDIOLINK PLUS™ is "SND OUT". This connects to "LINE In" on the AVT-44™.

Pin-out instructions for customized MATRIX Systems are included in the SCT System Documentation Manual for that system.

II. On-site Set-up:



Successive pushes of the MODE button will scroll through the following options on the LCD display:

Step	Line 1	Line 2	Options
1	Mode:	2-WIRE = OFF	ON / OFF
2	Mode:	2-WIRE PVC = OFF	ON / OFF
3	Mode:	4-WIRE = OFF	ON / OFF
4	Mode:	4-WIRE PVC = OFF	ON / OFF
5	Mode:	PUSH ON TO TRAIN	TRAIN SYSTEM (3 SEC)
6	Mode:	PUSH ON TO SAVE	SAVE SYSTEM SETTINGS
7	Mode:	4W->2W PVC = OFF	ON / OFF
8	Mode:	2W->4W PVC = OFF	ON / OFF
9	Mode:	OFF FOR DEFAULTS	FACTORY DEFAULTS
10	Mode:	MIC SETUP = OFF	Mic Level Mode
11	Mode:	PWR ON = 4W OFF	POWER ON 4W ON/OFF
12	Mode:	RS FILTR = 120Hz	120/250/500/750
13	Mode:	4WSND MUTE = OFF	ON / OFF
14	Mode:	LEC BYPASS = OFF	TEMPORARY LEC BYPASS
15	Mode:	AEC BYPASS = OFF	TEMPORARY AEC BYPASS
16	Mode:	AEC SIZE = LONG	SHORT / LONG
17	Mode:	AUTO-DISC = OFF	ON / OFF
18	Mode:	TEST = OFF	Enables Pink Noise

Successive pushes of the FUNCTION button will scroll through the following:

Step	Line 1	Line 2	Options
1	FUNCTION:	2W RCV : 0.0 dB	±6 dB in 1.5 dB Steps
2	FUNCTION:	2W SND : 0.0 dB	+12/-6 dB in 1.5 dB Steps
3	FUNCTION:	2W A/D : 0.0 dB	±6 dB in 1.5 dB Steps
4	FUNCTION:	4W RCV : 0.0 dB	±6 dB in 1.5 dB Steps
5	FUNCTION:	4W SND : 0.0 dB	±6 dB in 1.5 dB Steps
6	FUNCTION:	4W A/D : 0.0 dB	±6 dB in 1.5 dB Steps
7	FUNCTION:	RM SND : 0.0 dB	±6 dB in 1.5 dB Steps
8	FUNCTION:	AUX-IN : 0.0 dB	±6 dB in 1.5 dB Steps
9	FUNCTION:	AUX>SND: 0.0 dB	±6 dB in 1.5 dB Steps
10	FUNCTION:	AUX>RM : 0.0 dB	±6 dB in 1.5 dB Steps
11	FUNCTION:	AUX>REC: 0.0 dB	±6 dB in 1.5 dB Steps
12	FUNCTION:	4>2 BRG: 0.0 dB	±6 dB in 1.5 dB Steps
13	FUNCTION:	2>4 BRG: 0.0 dB	±6 dB in 1.5 dB Steps
14	FUNCTION:	2W D/A : 0.0 dB	±6 dB in 1.5 dB Steps

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15	FUNCTION:	4W D/A :	0.0 dB	±6 dB in 1.5 dB Steps
16	FUNCTION:	RM RCV :	0.0 dB	±6 dB in 1.5 dB Steps
17	FUNCTION:	RECORD :	0.0 dB	±6 dB in 1.5 dB Steps

Successive pushes of the MIC button will scroll through the following:

<u>Step</u>	<u>Line 1</u>	<u>Line 2</u>	<u>Options</u>
1	FUNCTION:	MIC A : 16	MUTE, 1 - 32 1 dB Steps
2	FUNCTION:	MIC B : 16	MUTE, 1 - 32 1 dB Steps
3	FUNCTION:	MIC C : 16	MUTE, 1 - 32 1 dB Steps
4	FUNCTION:	MIC D : 16	MUTE, 1 - 32 1 dB Steps
5	FUNCTION:	LINE IN : 16	MUTE, 1 - 32 1 dB Steps
6	FUNCTION:	MIC MASTER : 26	MUTE, 1 - 32 3 dB Steps
7	FUNCTION:	SPEAKER : 16	MUTE, 1 - 32 1 dB Steps

On "power up" there will be a 3 second sign-on message:

```
SOUND CONTROL
AVT-44 BIOS 3.06
```

followed by a 3 second "External Controls" message:

```
SOUND CONTROL
AVT-44 VER 3.16
```

then the "standby" display appears

```
MODE: STANDBY
STATUS: OK v0.35
```

The SCT AVT-44™ series of DSP signal processors are serial port firmware upgradeable.

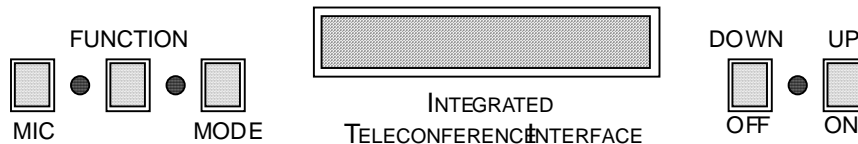
The VER(sion) number reflects the firmware level of the unit.

To upgrade system firmware contact your system installer or SCT.

SET UP SEQUENCE *Initializing and Training*

Note: The AVT-44™ echo cancellers are fully adaptive. "Initialization" and "Training" brings the system to optimization for the installed environment, accelerating the routine adaptive process. Once these coefficients have been initialized and saved, the system will then continuously adapt to changes in room occupancy, movement or similar transient situations.

A. 4 WIRE INITIALIZATION:



STEP ACTION

1. With the **MODE** button:
 Scroll to **MODE: 4W ON/OFF**

STATUS: 4W OFF

2. Press "ON", the 4 wire LED will light
3. With the **MODE** button:
Scroll to MODE: TRAIN
 ON TO TRAIN (Room should be quiet with no movement)
4. Training sound *Pink Noise* will be heard for 5 seconds.
5. Echo canceller training is automatically saved to non-volatile memory. The AVT-44™ will now use this training as an adaptive starting point for all future conferences.
6. Scroll to MODE: 4W ON/OFF
 STATUS: 4W ON
7. Press "OFF", the 4 wire LED will go off

B. 2 WIRE INITIALIZATION:

STEP ACTION

Place a standard telephone call. Using the system telephone handset place a call. Verify that call is connected and an acceptable quality line has been established, then:

1. With the **MODE** button:
Scroll to MODE: 2W ON/OFF
 STATUS: 2W OFF
2. Press "ON", the 2 wire LED will light
The call is now on the "SYSTEM" The far party will probably hear a pronounced echo.
3. Scroll to MODE: TRAIN
 ON TO TRAIN (Room should be quiet with no movement)
4. Training sound *Pink Noise* will be heard for 5 seconds.
5. Echo canceller training is automatically saved to non-volatile memory. The AVT-44™ will now use this training as an adaptive starting point for all future conferences.
6. Scroll to MODE: 2W ON/OFF
 STATUS: 2W ON
7. Press "OFF", the 2 wire LED will go off

This training process is generally only required at initial system set-up or if a significant change is made to the room. Retraining, (Step 3 in either mode) may be done at any time.

After a change in the general system level settings, a new "training" should be done.

A "starting point" has now been established for the echo cancellers. Since a model of the room and line has been created in coefficient memory, this model is essentially the impulse response of the room/line.

Reviewing this data can show the effectiveness of acoustic treatment and provide an indication of the relative intelligibility of the teleconference room.

Coefficient values can range from ± 1.0 , although proper set up should produce coefficients within ± 0.5 at initial burst, decaying steadily over the next few hundred milliseconds. High initial coefficients generally relates to inadequate room physical acoustic treatment.

The following diagram is a plot of typical amplitude and time coefficient values of the room.

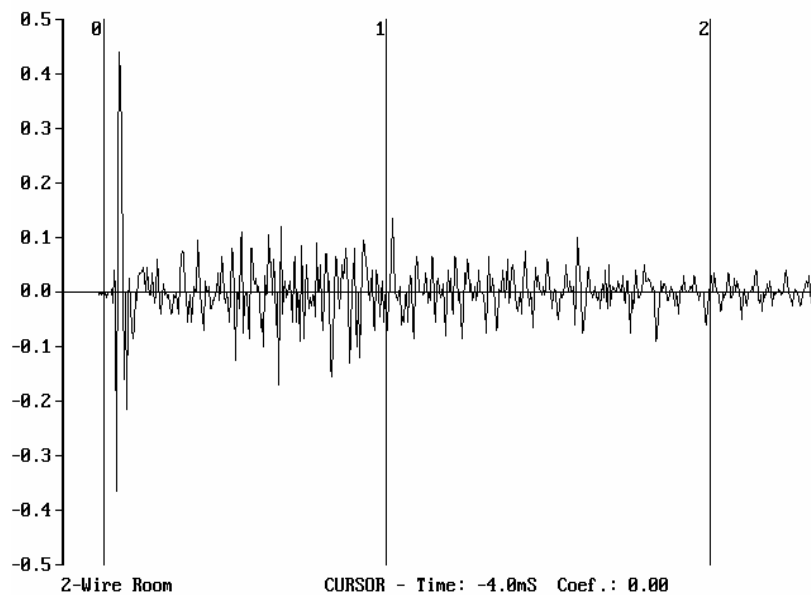
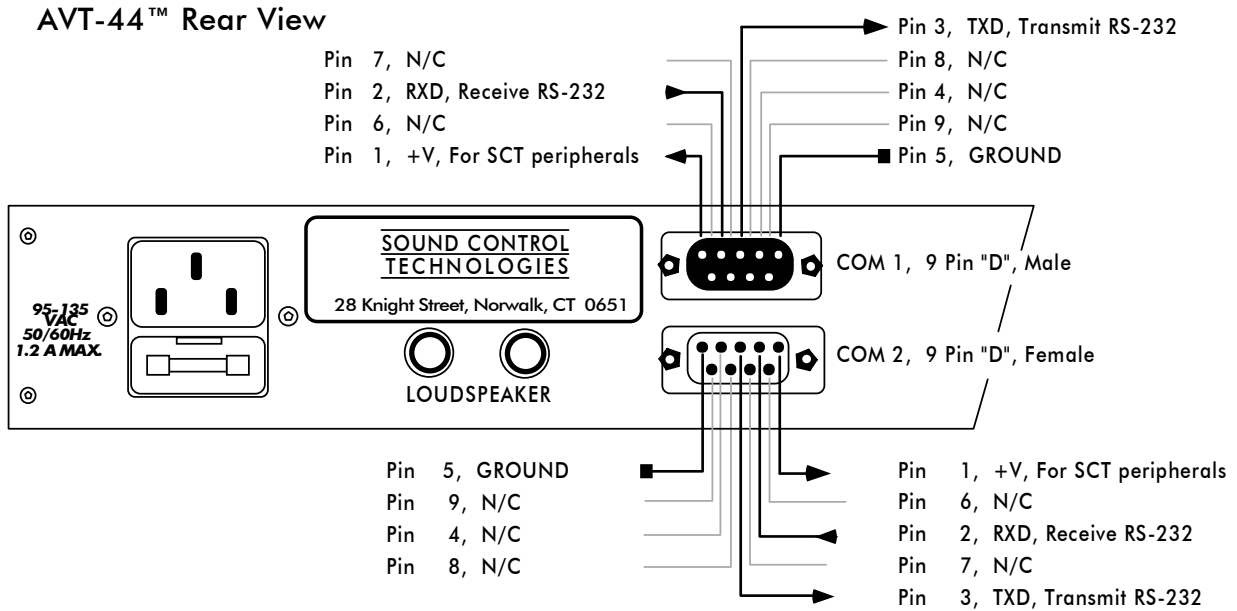


Figure 3 Plot of Room Echo Canceller coefficients

III. Controlling The AVT-44™

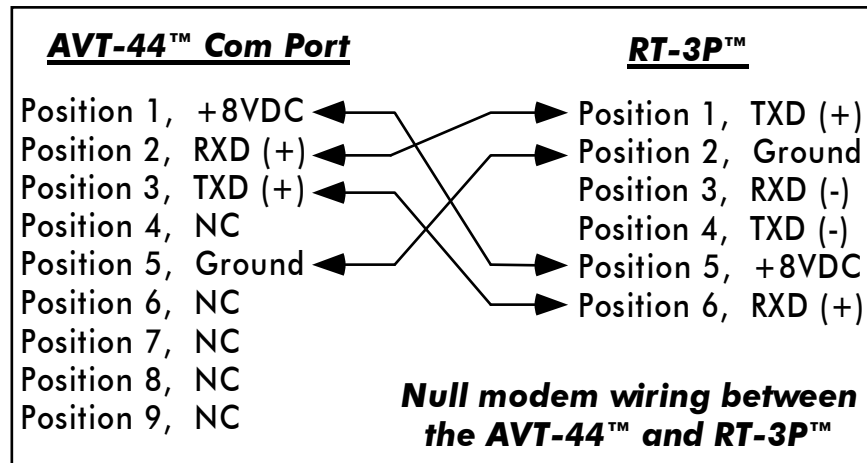
The AVT-44™ has been designed to accept instructions from remote locations via RS-232 commands through either of 2 rear serial ports (COM 1, COM 2).



Rear view of the AVT-44™ serial port, loudspeaker and power connections.

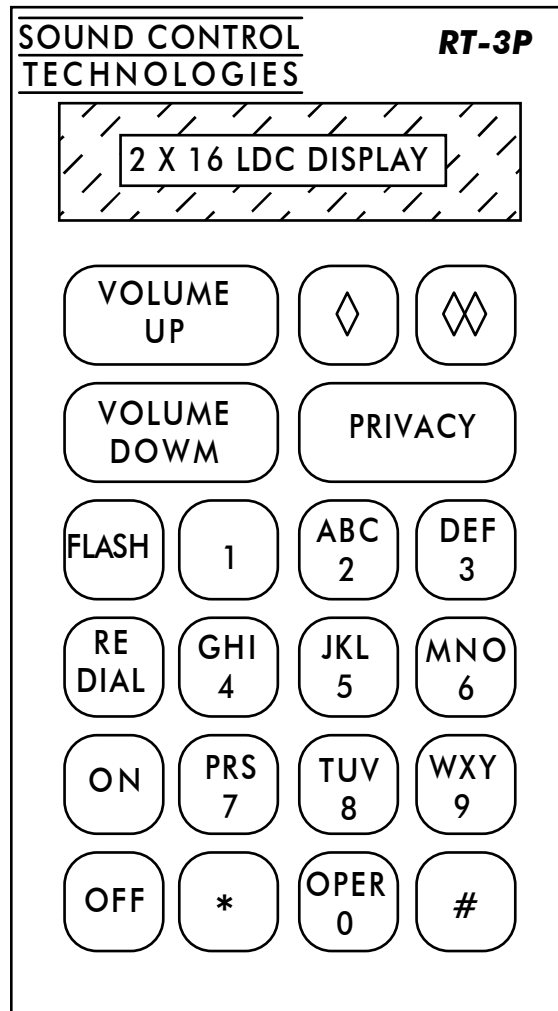
The RT-3P is wired from its 6 pin RJ-11 connectors to the AVT-44™ COM-1 or COM 2 port.

Null modem wiring between the AVT-44™ and RT-3P remote control.



SCT's RT-3P wired remote RS-232 control unit for the AVT-44™ telephone interface is factory programmed for the following functions with an LCD screen display:

- * ON/OFF transfer of the teleconference call
- * VOLUME CONTROL - RECEIVE sound UP/DOWN level into the room
- * PRIVACY
- * Last call REDIAL
- * KEY PAD DTMF dialing



1. Systems using the SCT RT-3P interface through the COM-1 Serial Port can raise or lower the ROOM volume (2WRCV) from the RT-3P keypad. Each step UP or DOWN is 1½ dB. (See the RT-3P Instruction Sheet)
2. Systems being controlled by integrated remote control systems can control volume SEND or RECEIVE through COM 1 or COM 2.

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Series II AVT-44™ INSTALLATION MANUAL AUDIO/VIDEO TELECONFERENCING INTERFACE BIOS 3.06/ Host 3.16/ DSP 0.35

The following commands can be used to control various functions in the AVT-44™ via computer, modem or other device capable of serial data transmission.

Commands:

1: STATUS= E	Screen Display
Device Registration	DEVICE=AVT-44
Host Software Ver.	VERSION=n.nn
DSP Software Ver.	DSPVERSION=0000xx
Two Wire Status	2WIRE=(1 or 0)
Four Wire Status	4WIRE=(1 or 0)
Privacy Status	PRVCY=(0 - 5)
Auto Answer Status	AA=(0 or 1 - 9)
2W Receive Level	2WRVCV=X (0 - 9)
2W A/D Level	2WA/D=X (0 - 9)
2W Send Level	2WSND=X (0 - 9)
Room Receive Level	RMRCV=X (0 - 9)
Room Send Level	RMSND=X (0 - 9)
4W Receive Level	4WRVCV=X (0 - 9)
4W A/D Level	4WA/D=X (0 - 9)
4W Send Level	4WSND=X (0 - 9)
Record Level	RECORD=X (0 - 9)
Aux In	AUXIN=X (0 - 9)
VU Levels	VU=x,x,x,x,x,x,x,x
MIC_A Level	MIC-A=Y (0 - 32)
MIC_B Level	MIC-B=Y (0 - 32)
MIC_C Level	MIC-C=Y (0 - 32)
MIC_D Level	MIC-D=Y (0 - 32)
Line Level In	LINE-IN=Y (0-32)
MIC_MASTER	MIC-MSTR=Z (0-32)
MIX_MASTER	MIX-MSTR=Z (0-32)
Speaker Level	SPEAKER=Z (0-32)
Push Button Lock	LOCK=0/1
Mode Change Report	REPORT=0/1
External Relay Mode	RLYMODE=0/1
External Relay Port	RLYPORT=0/1
Serial Port 1	COM1=X (0 - 9)
Serial Port 2	COM2=X (0 - 6)
Aux In Record	AUXREC=X (0 - 9)
Aux In Room	AUXRM=X (0 - 9)
Aux In Send	AUXSND=X (0 - 9)
Power On Default	PWRON4W=0/1
Mute for Room Out	M-MUTE=0/1
End of STATUS Report	@

Notes:

X- values are

"0-8" levels

8 = +6.0 dB

7 = +4.5 dB

6 = +3.0 dB

5 = +1.5 dB

4 = 0.0 dB

3 = -1.5 dB

2 = -3.0 dB

1 = -4.5 dB

0 = -6.0 dB

Y- values are

"M-32" levels

M= Mute

1-32 = 1dB Steps

Z- values are

"M-32" levels

M= Mute

1-32 = 4dB Steps

Serial Commands common to AVT-24™ & AVT-44™:

2. 2WIRE=0/1	2 Wire ON/OFF HOOK		
3. 4WIRE=0/1	4 Wire ON/OFF	12. 4WRCV=X	4 Wire RECEIVE level Defaults to "0" after each call
4. PRVCY=0	Un-Mutes ALL SEND signals	13. 4WA/D=X	4 Wire RECEIVE level
PRVCY=1	Mutes ALL SEND signals	14. 4WSND=X	4 Wire SEND level
PRVCY=2	Mutes 2W SEND signal	15. 24BRG=X	2WRCV>4WSND level
PRVCY=3	Un-Mutes 2W SEND signal	16. COM1=5/7	9600/19,200 bps
PRVCY=4	Mutes 4W SEND signal	COM2=0/5	OFF/9600 bps
PRVCY=5	Un-Mutes 4W SEND signal	17. DTMF=0 – 9, *, #	Dials 0-9, *, #
PRVCY=6	Mutes 4WRCV>2WSND	18. TRAIN=x	Training for the echo canceller, x= 1 – 9 seconds
PRVCY=7	Un-Mutes 4WRCV>2WSND	19. SAVE=1	Saves AEC training
PRVCY=8	Mutes 2WRCV>4WSND	20. NVSAVE=1	Saves user settings & levels
PRVCY=9	Un-Mutes 2WRCV>4WSND	21. M-MUTE=1	Mutes "Room Output"
5. AA=(1-9)	Rings for AUTO ANSWER	M-MUTE=0	Un-Mutes "Room Out"
AA=0	No AUTO ANSWER	22. REBOOT=1	Reboots AVT-44™
6. 2WRCV=X	2 Wire RECEIVE level Defaults to "0" after each call	23. ?	Unrecognized command
7. 2WA/D=X	2 Wire RECEIVE level	24. @	End of response (OK)
8. 2WSND=X	2 Wire SEND level	25. !	Unsolicited response
9. 42BRG=X	4WRCV>2WSND level		
10. RMRCV=X	ROOM RECEIVE level		
11. RMSND=X	ROOM SEND level		

Commands unique to AVT-44™:

26. MIC_A=Y	MIC A Input Level
MIC_B=Y	MIC B Input Level
MIC_C=Y	MIC C Input Level
MIC_D=Y	MIC D Input Level
27. LINE-IN=Y	Expansion Line Input
28. MIC-MSTR=Y	Mic/Line Master Level
29. MIX_MSTR=Z	Mic Mixer Master level
30. SPEAKER=Z	Speaker Level

Notes:

X- values are
"0-8" levels

- 8 = +6.0 dB
- 7 = +4.5 dB
- 6 = +3.0 dB
- 5 = +1.5 dB
- 4 = 0.0 dB**
- 3 = -1.5 dB
- 2 = -3.0 dB
- 1 = -4.5 dB
- 0 = -6.0 dB

Y- values are
"M-32" levels

M= Mute
1-32 = 1dB Steps

Z- values are
"M-32" levels

M= Mute
1-32 = 4dB Steps

Useful Power-Up BUTTON sequences:

Hold down the FUNCTION & OFF, _____	Lock out front buttons.
Hold down the FUNCTION & ON, _____	Un-Lock front buttons.
Hold down the MIC & FUNCTION & MODE, _____	Recall Factory feature defaults.
Hold down the ON & OFF, _____	Direct to DOWNLOAD.
Hold down the MODE, _____	Reset baud rate to 9600.

During a conference, only 2WRCV or 4WRCV (See page 9) should be adjusted. Other level adjustments may require system retraining.

Note: An incoming 2-wire call will send an ASCII "Bell" character (HEX 07) out of the COM ports as a RING indicator.

In addition, the AVT-44™ can be controlled from front panel push buttons. These control 2-Wire and/or 4 Wire system (telephone) off hook / on hook, privacy (microphone mute), microphone level and volume up/down (receive level to loudspeakers).

To "retain" the revised setting:

- 1) After changing the setting, wait for the screen to return to "STANDBY" status.
- 2) Scroll through the MODE button selections to "PUSH ON TO SAVE", press the "ON" button, and all non-volatile settings will be saved.

**** **NOTE:** In general, once installed and tuned, electronic equipment such as the AVT-44™ and AudioLink™ should remain powered to minimize possible degradation due to "power-up" surges or low voltage effects on system RAM.

If accidental power-down occurs and the system does not re-boot properly, it may be necessary to re-boot as follows:

- 1) Disconnect the rear power plug.
- 2) Wait 2 - 3 minutes before reconnecting. This delay allows the power supply to drop to zero volts.
- 3) Reconnect the rear power plug. Normal operation will commence.

