PARASOUND

ZtunerV.2 Owner's Manual Supplement
RS-232 Protocol

Protocol Specs		**Pin Connections**	
Baud Rate:	9600 bps	TxD:	Pin 2
Data Bit:	8 bits	RxD:	Pin 3
Stop Bit:	1 bit	Gnd:	Pin 5
Parity:	None		
Flow Control:	No		

Basic RS-232 Control: ASCII and hexadecimal control codes are shown below. The commas in the Hex code are merely for your ease of reading and are not required in transmission. All letters are upper case. All strings must have a space (line feed) between each number or letter (except two digit numbers like "10"). In the Hex examples the space is already represented with code "20". The end of each string must have a carriage return after the last number or character with no space in-between, this is represented by "<CR>". In the Hex examples, the carriage return is already represented with code "0D". The "xx" below represents a number within the range listed in the notes column. Examples that replace the "xx" with real numbers are listed on page 2. When the ZtunerV.2 is used with a PC, Crestron or AMX system a straight-through Male DB9 cable is required.

Command Action	**ASCII Code**	**Hex Code**	**Notes:**
Power On	W 1 1 1<CR>	57,20,31,20,31,20,31,OD	
Power Off	W 1 1 0<CR>	57,20,31,20,31,20,30,OD	
Power Toggle	W 1 1 10<CR>	57,20,31,20,31,20,31,30,OD	
Jump to Preset xx	W 1 3 1 xx<CR>	57,20,31,20,33,20,31,20,xx,xx,0D	Range is 01 to 20
Next preset	W 1 3 3<CR>	57,20,31,20,33,20,33,0D	
Previous Preset	W 1 3 4<CR>	57,20,31,20,33,20,34,0D	
Auto Tune Up	W 1 6 1<CR>	57,20,31,20,36,20,31,0D	
Auto Tune Down	W 1 6 2<CR>	57,20,31,20,36,20,32,0D	
Manual Tune up	W 1 6 3<CR>	57,20,31,20,36,20,33,0D	
Manual Tune Down	W 1 6 4<CR>	57,20,31,20,36,20,34,0D	
Direct Tune FM xxx.xx	W 1 7 xxx.xx<CR>	57,20,31,20,37,20,xx,xx,xx,2E,xx,xx,0D	Range is 087.50 to 107.90
Direct Tune AM xxxx	W 1 7 xxxx<CR>	57,20,31,20,37,20,xx,xx,xx,xx,0D	Range is 0520 to 1710
FM Band	W 1 8 1<CR>	57,20,31,20,38,20,31,0D	
AM Band	W 1 8 2<CR>	57,20,31,20,38,20,32,0D	
Set Max Preset to xx	W 1 4 xx<CR>	57,20,31,20,34,20,xx,xx,0D	Range is 01 to 20
Save as Preset xx	W 1 3 2 xx<CR>	57,20,31,20,33,20,32,20,xx,xx,0D	Range is 01 to 20
Enforced Mono On	W 1 9 2<CR>	57,20,31,20,39,20,32,0D	
Enforced Mono Off	W 1 9 1<CR>	57,20,31,20,39,20,31,0D	
Enforced Mono Toggle	W 1 9 3<CR>	57,20,31,20,39,20,33,0D	
Request Full Status	R 1 13<CR>	52,20,31,20,31,33,0D	Full status is returned
Request Mono Status	R 1 9<CR>	52,20,31,20,39,0D	Response: 1 or 2
Request Frequency	R 1 7<CR>	52,20,31,20,37,0D	Response: FMxxx.xx
Request Max Preset	R 1 4<CR>	52,20,31,20,34,0D	Response: 01 to 20

Example Strings: ASCII and hexadecimal examples are shown below. The commas in the Hex code example are merely for your ease of reading and are not required in transmission.

Jump to Preset 5	ASCII:	W 1 3 1 05<CR>	Hex:	57,20,31,20,33,20,31,20,30,35,0D
Jump to Preset 17	ASCII:	W 1 3 1 17<CR>	Hex:	57,20,31,20,33,20,31,20,31,37,0D
Direct Tune to 88.5 FM	ASCII:	W 1 7 088.50<CR>	Hex:	57,20,31,20,37,20,30,38,38,2E,35,30,0D
Direct Tune to 105.3 FM	ASCII:	W 1 7 105.30<CR>	Hex:	57,20,31,20,37,20,31,30,35,2E,33,30,0D
Direct Tune to 680 AM	ASCII:	W 1 7 0680<CR>	Hex:	57,20,31,20,37,20,30,36,38,30,0D
Direct Tune to 1580 AM	ASCII:	W 1 7 1580<CR>	Hex:	57,20,31,20,37,20,31,35,38,30,0D
Set Max Preset to 6	ASCII:	W 1 4 06<CR>	Hex:	57,20,31,20,34,20,30,36,0D
Set Max Preset to 15	ASCII:	W 1 4 15<CR>	Hex:	57,20,31,20,34,20,31,35,0D
Save as Preset 2	ASCII:	W 1 3 2 02<CR>	Hex:	57,20,31,20,33,20,32,20,30,32,0D
Save as Preset 19	ASCII:	W 1 3 2 19<CR>	Hex:	57,20,31,20,33,20,32,20,31,39,0D

RS-232 Feedback: The ZtunerV.2 will send unsolicited feedback anytime an IR, front panel or RS-232 command is issued. This means that you do not need to request feedback every time the station is changed. The start of a feedback string is indicated by an asterisk (*). The end of a feedback string is terminated by a carriage return. You can also poll the ZtunerV.2 for this information at any time by sending command "R 1 13<CR>".

Typical feedback looks like this:

*PW1 BD1 PR03 FR107.90<CR>

This would indicate Power is On, Band is FM, this is Preset 3 and the Frequency is 107.9. The feedback breaks down like this:

PW0	Indicates power off
PW1	Indicates power on
BD1	Indicates current band is FM
BD2	Indicates current band is AM
PR15	Indicates current preset is 15
PR03	Indicates current preset is 3
FR102.10	Indicates current frequency is 102.1
FR088.50	Indicates current frequency is 88.5
FR001680	Indicates current frequency is 1680 (AM)
FR000560	Indicates current frequency is 560 (AM)
*	Indicates start of transmission
<CR>	Carriage return indicates end of transmission

Note: Mono/Stereo status is not automatically sent. You can requested if a station is tuned in stereo or mono with command "R 1 9<CR>".   A 1 is returned for Stereo and a 2 for Mono. The exact string returned would look like "1<CR>" for Stereo or "2<CR>" for Mono.