ELITE

# VSX-52TX

# RS-232C Protocol

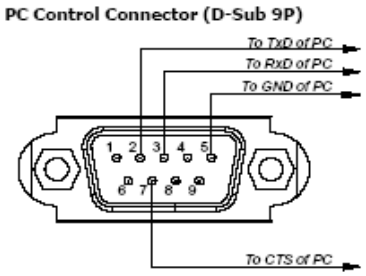
# *Physical Cable Connection*

### *Connector*

RS232C DB9 Male

| Pin | AV Receiver |
|---|---|
| 1 | *1 |
| 2 | RXD |
| 3 | TXD |
| 4 | *1 |
| 5 | GND |
| 6 | *1 |
| 7 | RTS(BUSY) |
| 8 | NC |
| 9 | NC |

*1 Pin 1&4&6 are shorted each other.




### *Communication*

Communication Speed : 9600bps

Protocol type : 8data bits,1stop bit,no parity

**PLEASE FOLLOW THIS PROCEDURE**

The default setting for external control of the VSX-52TX is SR+.
Therefore RS-232C is turned off.
Follow this procedure to activate RS-232C for external control systems.

1) Turn off the Power to place the receiver in "STANDBY" mode.
2) Press the EXTENDED MODE button and STANDBY/ON Button at the same time for at least three seconds.
3) The FL display should show the following message: "RS232COFF→ON?"
4) Confirm that the FL display shows the message and press the ENTER button within 5 seconds.
5) The display should show the following message: "RS-232C ON"
6) 232C control mode is now activated.

The same procedure can be used to return the receiver to SR+ control mode,

You can confirm whether the receiver is in RS232C Control Mode or in SR+ Control Mode by the following procedure:

Press the SR+ button on the remote and
Case 1) If you see either message "SR+ ON" or "SR+ OFF"
in the FL display, it means the receiver is in the SR+ Control Mode.
Case 2) If the receiver is in 232C Control Mode, no message will appear
when you press the SR+ button on the remote.

***VSX-52TX RS-232C Commands List***

**Automatic Feedback**

When the input or function status is changed using knobs on the front panel or the remote control of the receiver, the receiver will send it's new status automatically. (VOLXX,PQRX,MUTX,FUNXX,SRXXXX,LMXXX

(For example) The user changes a function on the front panel.
Receiver sends: FUNXX<CR+LF>

X:Argument:ASCⅡ code

**Status Request Commands**

| Command | Command Name | Argument | operation | Answer |
|---|---|---|---|---|
| ?V<CR> | VOLUME LEVEL STATUS REQUEST | | Return the VOLUME LEVEL | VOLXX<CR+LF> *1 |
| ?P<CR> | POWER STATUS REQUEST | | Return the POWER status | PWRX<CR+LF> *2 |
| ?M<CR> | MUTE STATUS REQUEST | | Return the MUTE status | MUTX<CR+LF> *2 |
| ?F<CR> | FUNCTION MODE REQUEST | | Return the FUNCTION MODE | FUNXX<CR+LF> *3 |
| ?S<CR> | LISTENING MODE SETTING REQUEST | | Return the L.M SETTING | SRXXXX<CR+LF> *4 |
| ?L<CR> | LISTENING MODE REQUEST | | Return the L.M | LMXXX<CR+LF> *5 |
| ?TO<CR> | TONE STATUS REQUEST | | Return the TONE status | TOX<CR+LF> *6 |
| ?BA<CR> | BASS STATUS REQUEST | | Return the BASS Level | BAXX<CR+LF> *7 |
| ?TR<CR> | TREBLE STATUS REQUEST | | Return the TREBLE Level | TRXX<CR+LF> *8 |
| ?PR<CR> | TUNER PRESET REQUEST | | Return the PRESET number | PRXXX<CR+LF> *9 |
| ?FR<CR> | TUNER FREQ REQUEST | | Return the FREQ number | FRXXXXX<CR+LF> *10 |
| ?AC<CR> | ACOUSTIC CAL REQUEST | | Return the ACOUSTIC CAL. status | ACX<CR+LF> *11 |

**Operation Commands**

| Command | Command Name | Argument | Operation | Answer |
|---|---|---|---|---|
| VU<CR> | VOLUME UP | | VOLUME UP | VOLXX<CR+LF> *1 |
| VD<CR> | VOLUME DOWN | | VOLUME DOWN | VOLXX<CR+LF> *1 |
| XXVL<CR> | VOLUME SET | 00-93 *1 | Set the VOLUME level | VOLXX<CR+LF> *1 |
| PO<CR> | POWER ON | | POWER ON | PWRX<CR+LF> *2 |
| PF<CR> | POWER OFF | | POWER OFF | PWRX<CR+LF> *2 |
| MO<CR> | MUTE ON | | MUTE ON | MUTX<CR+LF> *2 |
| MF<CR> | MUTE OFF | | MUTE OFF | MUTX<CR+LF> *2 |
| XXFN<CR> | FUNCTION MODE SET | *3 | Set the FUNCTION MODE | FUNXX<CR+LF> *3 |
| FU<CR> | FUNCTION MODE UP | | Change the FUNCTION MODE | FUNXX<CR+LF> *3 |
| XXX(X)SR<CR> | LISTENING MODE SET | *4 | Change the LISTENING MODE | SRXXX(X)<CR+LF> *4 |
| BI<CR> | BASS INCREMENT | | BASS INCREMENT | BAXX<CR+LF> *7 |
| BD<CR> | BASS DECREMENT | | BASS DECREMENT | BAXX<CR+LF> *7 |
| TI<CR> | TREBLE INCREMENT | | TREBLE INCREMENT | TRXX<CR+LF> *8 |
| TD<CR> | TREBLE DECREMENT | | TREBLE DECREMENT | TRXX<CR+LF> *8 |
| TB<CR> | TUNER BAND | | change the BAND (AM/FM) | FRXXXXX<CR+LF> *10 |
| XTP<CR> | TUNER PRESET | 0-9 | change the TUNER PRESET | PRXXX<CR+LF> *9 |
| TC<CR> | TUNER CLASS | | change the TUNER CLASS | PRXXX<CR+LF> *9 |
| TPI<CR> | TUNER PRESET INCREMENT | | TUNER PRESET INCREMENT | PRXXX<CR+LF> *9 |
| TPD<CR> | TUNER PRESET DECREMENT | | TUNER PRESET DECREMENT | PRXXX<CR+LF> *9 |
| TFI<CR> | TUNER FREQ INCREMENT | | TUNER FREQ INCREMENT | FRXXXXX<CR+LF> *10 |
| TFD<CR> | TUNER FREQ DECREMENT | | TUNER FREQ DECREMENT | FRXXXXX<CR+LF> *10 |
| XAC<CR> | ACOUSTIC CAL | 0,1,2,3,4 | change the ACOUSTIC CAL. | ACX<CR+LF> *11 |

**Error message**

| Error Message | Error Name | Meaning |
|---|---|---|
| E04<CR+LF> | COMMAND ERROR | Inappropriate Command line detected |
| E06<CR+LF> | ARGUMENT ERROR | Inappropriate Factor |

**Explanation of arguments**

*1 **VOLUME LEVEL** [2byte]

| | |
|---|---|
| 93VL<CR> | +12dB |
| 81VL<CR> | 0dB |
| 01VL<CR> | -80dB |
| 00VL<CR> | -- (same as mute) |

Example1

| | |
|---|---|
| Command ?V<CR> | Request Volume Level. |
| Answer VOL93<CR+LF> | Volume is set to +12dB. |

*2 **ON/OFF** Status Reply [1byte]

| | |
|---|---|
| 0 | ON |
| 1 | OFF |

Example2

| | |
|---|---|
| Command ?M<CR> | Request Mute Status. |
| Answer MUT0<CR+LF> | Mute is On. |

*3 **FUNCTION MODE Command NO.** [2byte]

| | |
|---|---|
| 00FN<CR> | PHONO |
| 01FN<CR> | CD |
| 02FN<CR> | TUNER |
| 03FN<CR> | CDR |
| 04FN<CR> | DVD |
| 05FN<CR> | TV |
| 10FN<CR> | VIDEO or VIDEO1 |
| 11FN<CR> | i.LINK UNASSIGNED DEVICE |
| 14FN<CR> | VIDEO2 |
| 15FN<CR> | DVR or DVR1 |

Example3

Command 04FN<CR> — Change to source 04(DVD).
Answer FUN04<CR+LF>

Example4

Command in respect of "?F<CR>" — Request Current Source.
Answer FUN04<CR+LF> — Source 04 is selected(DVD).

*7 BASS STATUS Reply [2byte]

| | |
|---|---|
| 00 | +6 |
| 02 | +4 |
| 04 | +2 |
| 06 | 0 |
| 08 | -2 |
| 10 | -4 |
| 12 | -6 |

Example2

Command ?BA<CR> — Request BASS Level.
Answer BA02<CR+LF> — BASS is set to +4dB.

*8 TREBLE STATUS Reply [2byte]

| | |
|---|---|
| 00 | +6 |
| 02 | +4 |
| 04 | +2 |
| 06 | 0 |
| 08 | -2 |
| 10 | -4 |
| 12 | -6 |

Example3

Command ?TR<CR> — Request TREBLE Level.
Answer TR02<CR+LF> — TREBLE is set to +4dB.

*9 PRESET Tuner Number Status Reply [3byte]

| | |
|---|---|
| *00 | 10 |
| *01 | 1 |
| *02 | 2 |
| *03 | 3 |
| *04 | 4 |
| *05 | 5 |
| *06 | 6 |
| *07 | 7 |
| *08 | 8 |
| *09 | 9 |

* = A : class A
* = B : class B
* = C : class C

Example4

Command ?PR<CR> — Request PRESET number
Answer PRA04<CR+LF> — PRESET number is set to class A 4
PRC00<CR+LF> — PRESET number is set to class C 10

*10 FREQENCY Number Status Reply [7byte]

| | |
|---|---|
| A0**** | |
| F***** | |

A is AM
F is FM
* is ASCⅡ code 0 - 9

Example5

Command ?FR<CR> — Request FREQ number
Answer FRA00890<CR+LF> — FREQ number is set to AM 890 kHz
FRF08010<CR+LF> — FREQ number is set to FM 80.10 MHz

*11 ACOUSTIC CALIBRATION COMMAND [1byte]

| | |
|---|---|
| 0AC<CR> | OFF |
| 1AC<CR> | ALL CH ADJ |
| 2AC<CR> | F ALIGN |
| 3AC<CR> | COUSTOM1 |
| 4AC<CR> | COUSTOM2 |

Example6

Command 1AC<CR> Change the ACOUSTIC CALIBRATION setting.

Answer AC1<CR+LF> ACOUSTIC CALIBRATION. is set to ALL CHANNEL ADJUST

*4 **LISTENING MODE SET**,**LISTENING MODE SETTING REQUEST** [4byte]

When you set the "Listening Mode"with the receiver's front panel keys and knobs,
you use the "LISTENING MODE SELECTOR" knob along with "LISTENING CH SELECT"button.
Depending on the source signal there are some modes which are not available. There is
automatic detection for 2ch and 6.1ch, but that too is source dependent (flags) and may not appear to work properly

With the "**SR**" command, you can select whichever mode you wish.
Also, you can confirm your selection with the "**SR**" command by using "**?S**" command query.

When a LISTENING MODE is changed, the set will dispatch an ANSWER to let the controller know the current set status
automatically without receiving a LISTENING MODE SETTING REQUEST. (Automatic Feedback)

[2-4byte]:data for mode setting.
Below the are the commands for selecting a LISTENING MODE.

STANDARD

| | | |
|---|---|---|
| 0000SR<CR> | PRO LOGIC Ⅱ MOVIE + SB CH OFF | "+ SB CH OFF" is the same as "5.1ch". |
| 0001SR<CR> | PRO LOGIC Ⅱ MUSIC + SB CH OFF | |
| 0002SR<CR> | PRO LOGIC + SB CH OFF | |
| 0003SR<CR> | Neo:6 CINEMA + SB CH OFF | |
| 0004SR<CR> | Neo:6 MUSIC + SB CH OFF | |
| 0005SR<CR> | PRO LOGIC Ⅱx MOVIE + SB CH ON | "+ SB CH ON" is the same as "7.1ch". |
| 0006SR<CR> | PRO LOGIC Ⅱx MUSIC + SB CH ON | |
| 0007SR<CR> | PRO LOGIC/7CH SURROUND + SB CH ON | |
| 0008SR<CR> | Neo:6 CINEMA + SB CH ON | |
| 0009SR<CR> | Neo:6 MUSIC + SB CH ON | |
| 0010SR<CR> | PRO LOGIC Ⅱx MOVIE + SB CH AUTO | "+ SB CH AUTO" is the same as "AUTO". |
| 0011SR<CR> | PRO LOGIC Ⅱx MUSIC + SB CH AUTO | |
| 0012SR<CR> | PRO LOGI + SB CH AUTO | |
| 0013SR<CR> | Neo:6 CINEMA + SB CH AUTO | |
| 0014SR<CR> | Neo:6 MUSIC + SB CH AUTO | |

ADVANCED CINEMA

| | | |
|---|---|---|
| 0050SR<CR> | ADVANCED MOVIE + SB CH OFF | "+ SB CH OFF" is the same as "5.1ch". |
| 0051SR<CR> | TV SURROUND + SB CH OFF | |
| 0052SR<CR> | SPORTS + SB CH OFF | |
| 0053SR<CR> | EXPANDED + SB CH OFF | |
| 0054SR<CR> | ADVANCED MOVIE + SB CH ON | |
| 0055SR<CR> | TV SURROUND + SB CH ON | |
| 0056SR<CR> | SPORTS + SB CH ON | |
| 0057SR<CR> | EXPANDED + SB CH ON | |
| 0058SR<CR> | ADVANCED MOVIE + SB CH AUTO | |
| 0059SR<CR> | TV SURROUND + SB CH AUTO | |
| 0060SR<CR> | SPORTS + SB CH AUTO | |
| 0061SR<CR> | EXPANDED + SB CH AUTO | |
| 0062SR<CR> | PHONES SURROUND | |

THX

| | | |
|---|---|---|
| 0064SR<CR> | PRO LOGIC Ⅱ MOVIE + SB CH OFF | "+ SB CH OFF" is the same as "5.1ch". |
| 0065SR<CR> | PRO LOGIC + SB CH OFF | |
| 0066SR<CR> | Neo:6 CINEMA + SB CH OFF | |
| 0067SR<CR> | PRO LOGIC Ⅱ MOVIE + SB CH ON | "+ SB CH ON" is the same as "7.1ch". |
| 0068SR<CR> | PRO LOGIC + SB CH ON | |
| 0069SR<CR> | Neo:6 CINEMA + SB CH ON | |
| 0070SR<CR> | PRO LOGIC Ⅱ MOVIE + SB CH AUTO | "+ SB CH AUTO" is the same as "AUTO". |
| 0071SR<CR> | PRO LOGIC + SB CH AUTO | |
| 0072SR<CR> | Neo:6 CINEMA + SB CH AUTO | |

ADVANCED CONCERT

| | |
|---|---|
| 0101SR<CR> | 5CH-STEREO + SB CH OFF |
| 0107SR<CR> | 5CH-STEREO + SB CH ON |
| 0113SR<CR> | XCH-STEREO + SB CH AUTO |

| | |
|---|---|
| 0114SR<CR> | ADVANCED MUSIC + SB CH OFF |
| 0115SR<CR> | ADVANCED GAME + SB CH OFF |
| 0116SR<CR> | ADVANCED MUSIC + SB CH ON |
| 0117SR<CR> | ADVANCED GAME + SB CH ON |
| 0118SR<CR> | ADVANCED MUSIC + SB CH AUTO |
| 0119SR<CR> | ADVANCED GAME + SB CH AUTO |

STEREO

| | |
|---|---|
| 0128SR<CR> | STEREO |
| 0129SR<CR> | DIRECT |

AUTO

| | |
|---|---|
| 0150SR<CR> | AUTO SURROUND + SB CH OFF |
| 0151SR<CR> | AUTO SURROUND+ SB CH ON |
| 0152SR<CR> | AUTO SURROUND+ SB CH AUTO |

MULTI-CH

| | |
|---|---|
| 0512SR<CR> | MULTI-CH INPUT |

Additional Setting for THX mode:Only applicable 2-4byte is 067-069

| | |
|---|---|
| 1 | SURROUND EX |
| 4 | PRO LOGIC Ⅱx MOVIE |

Additional Setting for STANDARD mode:Only applicable 2-4byte is 005-009

| | |
|---|---|
| 0 | STANDARD EX |
| 2 | PRO LOGIC Ⅱx MOVIE |
| 3 | PRO LOGIC Ⅱx MUSIC |

Example5

Command **0**006SR<CR>
Answer SR**0**006<CR+LF>

0 : STANDARD EX
006 : PRO LOGIC Ⅱ MUSIC

Example6

Command ?S<CR>
Answer SR**2**067<CR+LF>

2 :THX ULTRA2 CINEMA
067 :PRO LOGIC Ⅱ MOVIE

*5 **LISTENING (DECODE) MODE REQUEST** [3byte]

Below is the list Indicating the combination of the LISTENING MODE selected by "SR" command and the LISTENING MODE determined by the input source signal.

When the LISTENING MODE is set and the format for the source signal is confirmed, the receiver will send an ANSWER COMMAND to the controller to let it know the LISTENING MODE status. It replies automatically and does not need to receive a LISTENING MODE REQUEST.
(Automatic Feedback)
LISTENING MODE shows the current signal format the receiver is detecting or the surround mode which has been added to the original signal
LM***

**STEREO**

| | |
|---|---|
| LM128 | STEREO |
| LM129 | DIRECT |

| | |
|---|---|
| LM304 | PCM 88.2KHz STEREO |
| LM308 | PCM 88.2KHz DIRECT |
| LM305 | PCM 96KHz STEREO |
| LM309 | PCM 96KHz DIRECT |
| LM306 | PCM 176.4KHz STEREO |
| LM310 | PCM 176.4KHz DIRECT |
| LM307 | PCM 192KHz STEREO |
| LM311 | PCM 192KHz DIRECT |

| | |
|---|---|
| LM322 | DTS 96/24 STEREO |
| LM323 | DTS 96/24 DIRECT |

| | |
|---|---|
| LM358 | DVD-AUDIO 88.2KHz STEREO |
| LM359 | DVD-AUDIO 88.2KHz DIRECT |
| LM360 | DVD-AUDIO 96KHz STEREO |
| LM361 | DVD-AUDIO 96KHz DIRECT |
| LM362 | DVD-AUDIO 176KHz STEREO |
| LM364 | DVD-AUDIO 176KHz DIRECT |
| LM363 | DVD-AUDIO 192KHz STEREO |
| LM365 | DVD-AUDIO 192KHz DIRECT |

| | |
|---|---|
| LM342 | SACD STEREO |
| LM343 | SACD DIRECT |

**STANDARD**

| | |
|---|---|
| LM002 | PRO LOGIC |
| LM000 | PRO LOGIC Ⅱ MOVIE |
| LM001 | PRO LOGIC Ⅱ MUSIC |
| LM003 | Neo:6 CINEMA |
| LM004 | Neo:6 MUSIC |
| LM050 | PRO LOGIC Ⅱx MOVIE |
| LM051 | PRO LOGIC Ⅱx MUSIC |

| | |
|---|---|
| LM031 | PCM |
| LM300 | PCM 88.2KHz |
| LM015 | PCM 96KHz |

| | |
|---|---|
| LM016 | DOLBY DIGITAL |
| LM017 | DOLBY DIGITAL EX |

| | |
|---|---|
| LM019 | DTS |
| LM022 | DTS-ES DISC 6.1 |
| LM023 | DTS-ES MTRX 6.1 |
| LM030 | DTS 96/24 |
| LM324 | DTS + Neo:6 |

| | |
|---|---|
| LM027 | MPEG-2 AAC |
| LM028 | MPEG-2 AAC EX |

| | |
|---|---|
| LM350 | DVD-AUDIO |
| LM351 | DVD-AUDIO 88.2KHz |
| LM352 | DVD-AUDIO 96KHz |

| | |
|---|---|
| LM340 | SACD |

VIRTUAL SURROUND BACK

| | |
|---|---|
| LM062 | PRO LOGIC Ⅱ MOVIE +VSB |
| LM063 | PRO LOGIC Ⅱ MUSIC +VSB |
| LM064 | PRO LOGIC + VSB |
| LM065 | Neo:6 CINEMA + VSB |
| LM066 | Neo:6 MUSIC + VSB |
| LM067 | DOLBY DIGITAL + VSB |
| LM068 | MPEG-2 AAC + VSB |
| LM069 | DTS + VSB |

**ADVANCED CINEMA**

| | |
|---|---|
| LM180 | ADVANCED MOVIE |
| LM181 | TV SURROUND |
| LM182 | SPORTS |
| LM183 | GAME |
| LM184 | EXPANDED |
| LM185 | PHONES SURROUND |

| | |
|---|---|
| LM186 | ADVANCED MOVIE + V.SB |
| LM187 | TV SURROUND + V.SB |
| LM188 | SPORTS + V.SB |
| LM189 | GAME + V.SB |
| LM190 | EXPANDED + V.SB |

**ADVANCED CONCERT**

| | |
|---|---|
| LM107 | 7CH-STEREO |
| LM114 | ADVANCED MUSIC |

| | |
|---|---|
| LM113 | 5CH-STEREO+V.SB |
| LM115 | ADVANCED MUSIC + V.SB |

**THX**

| | |
|---|---|
| LM087 | PRO LOGIC Ⅱx MOVIE + THX |

| | |
|---|---|
| LM080 | THX CINEMA |
| LM081 | THX SURROUND EX |
| LM085 | DTS + Neo6 + THX |
| LM084 | DTS-ES + THX |

**MULTI-CH**

| | |
|---|---|
| LM200 | MULTI-CH IN |