# Cary Audio Design <br> DVD 6 dvd player <br> RS-232 Protocol and Control Details 

## Com Port Setup:

Use standard communications settings. The default that most devices use/accept is:
Baud Rate - 9600
Data Bits - 8
Parity - None
Stop Bits - 1

## Com Port Pin Configuration:

Use standard pin configuration. A configuration that allows direct connection to a PC via
9 -pin straight through serial cable is best. Use of only 3 pins(Transmit, Receive, Ground)is best.
9 pin female D connector
Pin $2=$ Transmit
Pin $3=$ Receive
Pin $5=$ Ground
RS-232 interface :
Commands are to be sent to the unit via RS-232 using the following format:
$<$ Command $>=<$ Command ID $><$ Argument $>$
$<$ Command ID> $=<$ Byte $>$
$<$ Argument $>=0 \mathrm{x} 0 \mathrm{~d}$
$<$ Byte $>=0 \times 30,0 \times 30$

## Status Byte:

Upon receiving the command and done, a single status byte will be transmitted The format for the status byte is :
<Status Byte $>=$ Command $>$
<Command> $=0 \times 31,0 \times 30,0 \times 30$
RS232-Interface Usage Details:
The RS-232 interface has a first-in-first-out (FIFO) buffer which will allow each commands to be received in direct succession. Commands are executed in the order in which they are received with approximately a $1 / 2$ second delay between each command. If a longer string of commands is necessary, a minimum of $1 / 2$ second delay should be added before sending additional commands.

Example for sending a long string of commands:
[Command 1]
$<$ Delay $1 / 2$ second $>$
[Command 2]
<Delay $1 / 2$ second $>$
[Command 3]
<Delay $1 / 2$ second $>$
If receiving the errors data, a single status byte will be transmitted. The status byte is:
Rs232 = <ERR>
ASCII $=<0 \times 45,0 \times 58,0 \times 58>$

| Upon Receiving the Command and done |  |  | Single Status byte will be transmitted |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Command description | $\begin{gathered} \text { Rs232 } \\ \text { Command } \end{gathered}$ | ASCII <br> Command | Status <br> Command Description | $\begin{gathered} \mathrm{Rs} 232 \\ \text { Command } \end{gathered}$ | ASCII <br> Command |
| POWER ON | 00 | 0x30,0x30,0x0d | Take unit out of standby | 100 | $0 \times 31,0 \times 30,0 \times 30$ |
| POWER OFF | 01 | 0x30,0x31,0x0d | Put unit in standby | 101 | 0x31,0x30,0x31 |
| TRAY OPEN/CLOSE | 02 | 0x30,0x32,0x0d | Tray open | 102a | 0x31,0x30,0x32,0x41 |
|  |  |  | Tray close | 102b | 0x31,0x30,0x32,0x42 |
| PLAY | 03 | 0x30,0x33,0x0d | Play | 103 | 0x $31,0 \times 30,0 \times 33$ |
| PREVIOUS | 04 | 0x30,0x34,0x0d | Previous | 104 | 0x31,0x30,0x34 |
| PAUSE | 05 | 0x30,0x35,0x0d | Pause | 105 | 0x31,0x30,0x35 |
| STOP | 06 | 0x30,0x36,0x0d | Stop | 106 | 0x $31,0 \times 30,0 \times 36$ |
| NEXT | 07 | 0x30,0x37,0x0d | Next | 107 | $0 \times 31,0 \times 30,0 \times 37$ |
| REVERSE | 08 | $0 \times 30,0 \times 38,0 \times 0 \mathrm{~d}$ | Reverse | 108 | $0 \times 31,0 \times 30,0 \times 38$ |
| FORWARD | 09 | 0x30,0x39,0x0d | Forward | 109 | 0x31,0x30,0x39 |
| NUMBER KEY PAD 1 | 0A | 0x30,0x41,0x0d | Number Keypad 1 | 10A | 0x31,0x30,0x41 |
| NUMBER KEY PAD 2 | 0B | 0x30,0x42,0x0d | Number Keypad 2 | 10B | $0 \times 31,0 \times 30,0 \times 42$ |
| NUMBER KEY PAD 3 | 0C | 0x30,0x43,0x0d | Number Keypad 3 | 10C | 0x31,0x30,0x43 |
| NUMBER KEY PAD 4 | 0D | 0x30,0x44,0x0d | Number Keypad 4 | 10D | 0x31,0x30,0x44 |
| NUMBER KEY PAD 5 | 0E | 0x30,0x45,0x0d | Number Keypad 5 | 10E | 0x $31,0 \times 30,0 \times 45$ |
| NUMBER KEY PAD 6 | 0F | 0x $30,0 \times 46,0 x 0 \mathrm{~d}$ | Number Keypad 6 | 10F | 0x $31,0 \times 30,0 \times 46$ |
| NUMBER KEY PAD 7 | 10 | 0x31,0x30,0x0d | Number Keypad 7 | 110 | 0x31,0x31,0x30 |
| NUMBER KEY PAD 8 | 11 | 0x31,0x31,0x0d | Number Keypad 8 | 111 | $0 \times 31,0 \times 31,0 \times 31$ |
| NUMBER KEY PAD 9 | 12 | 0x31,0x32,0x0d | Number Keypad 9 | 112 | $0 \times 31,0 \times 31,0 \times 32$ |
| NUMBER KEY PAD 0 | 13 | 0x31,0x33,0x0d | Number Keypad 0 | 113 | $0 \times 31,0 \times 31,0 \times 33$ |
| NUMBER KEY PAD +10 | 14 | 0x31,0x34,0x0d | Number Keypad +10 | 114 | $0 \times 31,0 \times 31,0 \times 34$ |
| GOTO | 15 | 0x31,0x35,0x0d | Goto | 115 | 0x31,0x31,0x35 |
| REPEA T ALL | 16 | 0x31,0x36,0x0d | Repeat All | 116 | 0x $31,0 \times 31,0 \times 36$ |
| REPEAT A - B | 18 | 0x31,0x38,0x0d | Repeat A - B | 118 | 0x31,0x31,0x38 |
| POWER ON/OFF | 2A | 0x32,0x41,0x0d | Power on / off | 12A | 0x31,0x32,0x41 |
| MUTE | 19 | 0x31,0x39,0x0d | Mute | 119 | $0 \times 31,0 \times 31,0 \times 39$ |
| VOLUME - | 1A | 0x31,0x41,0x0d | Volume - | 11A | 0x31,0x31,0x41 |
| VOLUME + | 1B | 0x31,0x42,0x0d | Volume + | 11B | 0x $31,0 \times 31,0 \times 42$ |
| DVD ANGLE | 1 C | 0x31,0x43,0x0d | DVD Angle | 11C | $0 \times 31,0 \times 31,0 \times 43$ |
| DVD SUB-TITLE | 1D | 0x31,0x44,0x0d | DVD Sub-title | 11D | $0 \times 31,0 \times 31,0 \times 44$ |
| DVD AUDIO | 1 E | 0x31,0x45,0x0d | DVD Audio | 11E | 0x31,0x31,0x45 |
| DVD MENU | 1F | 0x31,0x46,0x0d | DVD Menu | 11F | $0 \times 31,0 \times 31,0 \times 46$ |
| DVD ON SCREEN DISPLAY | 20 | 0x32,0x30,0x0d | DVD on screen disply | 120 | 0x31,0x32,0x30 |
| DVD TITLE | 21 | 0x32,0x31,0x0d | DVD Title | 121 | $0 \times 31,0 \times 32,0 \times 31$ |
| SETUP MENU | 22 | 0x32,0x32,0x0d | Setup Menu | 122 | $0 \times 31,0 \times 32,0 \times 32$ |
| NAVIGATION UP | 23 | 0x32,0x33,0x0d | Navigation up | 123 | 0x $31,0 \times 32,0 \times 33$ |
| NAVIGATION DOWN | 24 | 0x32,0x34,0x0d | Navigation Down | 124 | $0 \times 31,0 \times 32,0 \times 34$ |
| NAVIGATION LEFT | 25 | 0x32,0x35,0x0d | Navigation Left | 125 | 0x31,0x32,0x35 |
| NAVIGATION RIGHT | 26 | 0x32,0x36,0x0d | Navigation Right | 126 | 0x $31,0 \times 32,0 \times 36$ |
| NAVIGATION ENTER | 27 | 0x32,0x37,0x0d | Navigation Enter | 127 | 0x31,0x32,0x37 |
| ZOOM - | 28 | $0 \times 32,0 \times 38,0 \times 0 \mathrm{~d}$ | Zoom - | 128 | 0x $31,0 \times 32,0 \times 38$ |
| ZOOM + | 29 | 0x32,0x39,0x0d | Zoom + | 129 | 0x $31,0 \times 32,0 \times 39$ |

