Rotel RSX-1065
RS232 HEX Protocol

Date	Version	Update Description
February 7, 2012	1.00	Original Specification

The RS232 protocol structure for the RSX-1065 is detailed below. This is a HEX based communication protocol.

Connection Settings

Baud Rate	Parity	Valid Data Bits	Stop Bit Value	Handshaking	Data Type
19200	N	8	1	None	String

All commands sent to the attached Rotel device must follow the command structure detailed below, unless specified otherwise. Send only the bytes only, no spaces, delimeter, etc.

Standard Command String Format

Start	Count	Device ID	Type	Key	Checksum
0xFE	0x03	0xC1	0x10	0xXX	0xXX

Note: *The count byte only includes the ID, Type, and Key bytes; it does not include the Start or Checksum bytes.*

Note 2: *Do not include any carriage returns or line feeds after the commands*

Communication Protocol

Command and response messages are included on the following pages. The standard response string of the unit mirrors the data that would be available on the front panel of the unit.

Any change to the status of the front display on the unit will prompt a feedback string mirroring that change.

Note that the spaces shown between hex bytes below are for clarity only; do not include spaces in the actual command sent to the unit.

Meta Encoding

The start byte for all command and response strings is FE. To keep the device from encountering the start byte FE in any position other than as the start byte, any occurrence of the byes FD or FE in a command string must be converted to either FD 00 (for FD), or FD 01 (for FE). This will allow the string to pass while masking any occurrence of the byte FE except as the start byte. Commands that have Meta Encoding applied will be highlighted in red.

Section 1: Control Command List

RSX-1065 HEX	Command Description
POWER & VOLUME COMMANDS	
FE 03 C1 10 0A DE	Power Toggle
FE 03 C1 10 4A 1E	Power Off
FE 03 C1 10 4B 1F	Power On
FE 03 C1 10 0B DF	Volume Up
FE 03 C1 10 0C E0	Volume Down
FE 03 C1 10 1E F2	Mute Toggle
SOURCE SELECTION COMMANDS	
FE 03 C1 10 02 D6	Source CD
FE 03 C1 10 03 D7	Source Tuner
FE 03 C1 10 04 D8	Source Tape
FE 03 C1 10 05 D9	Source Video 1
FE 03 C1 10 06 DA	Source Video 2
FE 03 C1 10 07 DB	Source Video 3
FE 03 C1 10 08 DC	Source Video 4
FE 03 C1 10 09 DD	Source Video 5
FE 03 C1 10 15 E9	Source Multi Input
SURROUND MODE COMMANDS	
FE 03 C1 10 11 E5	Stereo
FE 03 C1 10 12 E6	Dolby 3 Stereo
FE 03 C1 10 13 E7	Dolby Pro Logic
FE 03 C1 10 14 E8	DSP Music Mode Toggle
FE 03 C1 10 53 27	Dolby 3 Stereo / Pro Logic Toggle
FE 03 C1 10 54 28	dts Neo:6 Music/Cinema Toggle
FE 03 C1 10 57 2B	Music 1
FE 03 C1 10 58 2C	Music 2
FE 03 C1 10 59 2D	Music 3
FE 03 C1 10 5A 2E	Music 4
FE 03 C1 10 5B 2F	5 Channel Stereo
FE 03 C1 10 5C 30	7 Channel Stereo
FE 03 C1 10 5D 31	Dolby PLII Cinema
FE 03 C1 10 5E 32	Dolby PLII Music
FE 03 C1 10 5F 33	Dolby Pro Logic
FE 03 C1 10 60 34	dts Neo:6 Music
FE 03 C1 10 61 35	dts Neo:6 Cinema
FE 03 C1 10 62 36	PLII Panorama Toggle
FE 03 C1 10 63 37	PLII Dimension Up
FE 03 C1 10 64 38	PLII Dimension Down
FE 03 C1 10 65 39	PLII Center Width Up
FE 03 C1 10 66 3A	PLII Center Width Down

RSX-1065 HEX	Command Description
FE 03 C1 10 68 3C	Dolby Digital EX Toggle
FE 03 C1 10 22 F6	Next Surround Mode
TONE CONTROL COMMANDS	
FE 03 C1 10 0D E1	Treble Up
FE 03 C1 10 0E E2	Treble Down
FE 03 C1 10 0F E3	Bass Up
FE 03 C1 10 10 E4	Bass Down
OSD MENU COMMANDS	
FE 03 C1 10 18 EC	OSD Menu
FE 03 C1 10 19 ED	Enter
FE 03 C1 10 1A EE	Cursor Right
FE 03 C1 10 1B EF	Cursor Left
FE 03 C1 10 1C F0	Cursor Up
FE 03 C1 10 1D F1	Cursor Down
TUNER COMMANDS	
FE 03 C1 10 28 FC	Tune Up
FE 03 C1 10 29 FD 00	Tune Down
FE 03 C1 10 27 FB	Memory
FE 03 C1 10 24 F8	Band Toggle
FE 03 C1 10 56 2A	AM
FE 03 C1 10 55 29	FM
FE 03 C1 10 20 F4	Tune / Preset
FE 03 C1 10 69 3D	Tuning Mode Select
FE 03 C1 10 6A 3E	Preset Mode Select
FE 03 C1 10 25 F9	Frequency Direct
FE 03 C1 10 21 F5	Preset Scan
FE 03 C1 10 44 18	Tuner Display
FE 03 C1 10 45 19	RDS PTY
FE 03 C1 10 46 1A	RDS TP
FE 03 C1 10 47 1B	RDS TA
FE 03 C1 10 26 FA	FM Mono
NUMERIC KEY COMMANDS	
FE 03 C1 10 2A FD 01	Number 1
FE 03 C1 10 2B FF	Number 2
FE 03 C1 10 2C 00	Number 3
FE 03 C1 10 2D 01	Number 4
FE 03 C1 10 2E 02	Number 5
FE 03 C1 10 2F 03	Number 6
FE 03 C1 10 30 04	Number 7
FE 03 C1 10 31 05	Number 8
FE 03 C1 10 32 06	Number 9
FE 03 C1 10 33 07	Number 0

RSX-1065 HEX	Command Description
OTHER COMMANDS	
FE 03 C1 10 17 EB	Record Function Select
FE 03 C1 10 16 EA	Dynamic Range
FE 03 C1 10 1F F3	Digital Input Select
FE 03 C1 10 23 F7	Zone 2 / Main
FE 03 C1 10 4C 20	Temporary Center Trim
FE 03 C1 10 4D 21	Temporary Subwoofer Trim
FE 03 C1 10 4E 22	Temporary Surround Trim
FE 03 C1 10 4F 23	Cinema EQ Toggle
FE 03 C1 10 52 26	Front Display On/Off
FE 03 C1 10 FF D3	Display Refresh

Section 2: Feedback String Format

Standard Response String Format

Start	Count	ID	Type	Data						Checksum
0xFE	0x31	0xC1	0x20	Char1	...	Char42	Flag1	...	Flag5	0xXX

The feedback string is a representation of the display of the unit.

The Char1 - Char42 data bytes contain ASCII data representing the text that appears across the 2 lines of the front display. It can contain source input, volume, and surround mode data and should be parsed to obtain this information.

The Flag1 - Flag5 data bytes contain data on which of the various icons on the front display are currently illuminated.

The display status uses 2 bits in Flag3 to confirm if the front display is On or Off.

Flag1 – Flag5 Data

	Flag1	Flag2	Flag3	Flag4	Flag5
Bit0	A		Display Mode0	SB	CBL
Bit1	5		Display Mode1		CBR
Bit2	4	DSP			SW
Bit3	3	EX	Standby LED	<	SR
Bit4	2	THX	Tuned	>	SL
Bit5	1	dts	St (Tuner)	7.1	FR
Bit6	Coaxial	Pro Logic	RDS	5.1	C
Bit7	Optical	Dolby Digital	Preset	Zone	FL

Display Status

	Display On	Display Off
Display Mode 1	0	1
Display Mode 0	0	0