Rotel RSX-1055
RS232 HEX Protocol

Date	Version	Update Description
February 2, 2012	1.00	Original Specification

The RS232 protocol structure for the RSX-1055 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	0xC3	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-1055 HEX	Command Description
POWER & VOLUME COMMANDS	
FE 03 C3 10 0A E0	Power Toggle
FE 03 C3 10 4A 20	Power Off
FE 03 C3 10 4B 21	Power On
FE 03 C3 10 0B E1	Volume Up
FE 03 C3 10 0C E2	Volume Down
FE 03 C3 10 1E F4	Mute Toggle
SOURCE SELECTION COMMANDS	
FE 03 C3 10 02 D8	Source CD
FE 03 C3 10 03 D9	Source Tuner
FE 03 C3 10 04 DA	Source Tape
FE 03 C3 10 05 DB	Source Video 1
FE 03 C3 10 06 DC	Source Video 2
FE 03 C3 10 07 DD	Source Video 3
FE 03 C3 10 08 DE	Source Video 4
FE 03 C3 10 09 DF	Source Video 5
FE 03 C3 10 15 EB	Source Multi Input
SURROUND MODE COMMANDS	
FE 03 C3 10 11 E7	Stereo
FE 03 C3 10 12 E8	Dolby 3 Stereo
FE 03 C3 10 13 E9	Dolby Pro Logic
FE 03 C3 10 14 EA	DSP Music Mode Toggle
FE 03 C3 10 53 29	Dolby 3 Stereo / Pro Logic Toggle
FE 03 C3 10 54 2A	dts Neo:6 Music/Cinema Toggle
FE 03 C3 10 57 2D	Music 1
FE 03 C3 10 58 2E	Music 2
FE 03 C3 10 59 2F	Music 3
FE 03 C3 10 5A 30	Music 4
FE 03 C3 10 5B 31	5 Channel Stereo
FE 03 C3 10 5C 32	7 Channel Stereo
FE 03 C3 10 5D 33	Dolby PLII Cinema
FE 03 C3 10 5E 34	Dolby PLII Music
FE 03 C3 10 5F 35	Dolby Pro Logic
FE 03 C3 10 60 36	dts Neo:6 Music
FE 03 C3 10 61 37	dts Neo:6 Cinema
FE 03 C3 10 62 38	PLII Panorama Toggle
FE 03 C3 10 63 39	PLII Dimension Up
FE 03 C3 10 64 3A	PLII Dimension Down
FE 03 C3 10 65 3B	PLII Center Width Up
FE 03 C3 10 66 3C	PLII Center Width Down

RSX-1055 HEX	Command Description
FE 03 C3 10 68 3E	Dolby Digital EX Toggle
FE 03 C3 10 22 F8	Next Surround Mode
TONE CONTROL COMMANDS	
FE 03 C3 10 0D E3	Treble Up
FE 03 C3 10 0E E4	Treble Down
FE 03 C3 10 0F E5	Bass Up
FE 03 C3 10 10 E6	Bass Down
FE 03 C3 10 67 3D	Tone Control Select
OSD MENU COMMANDS	
FE 03 C3 10 18 EE	OSD Menu
FE 03 C3 10 19 EF	Enter
FE 03 C3 10 1A F0	Cursor Right
FE 03 C3 10 1B F1	Cursor Left
FE 03 C3 10 1C F2	Cursor Up
FE 03 C3 10 1D F3	Cursor Down
TUNER COMMANDS	
FE 03 C3 10 28 FD 01	Tune Up
FE 03 C3 10 29 FF	Tune Down
FE 03 C3 10 27 FD 00	Memory
FE 03 C3 10 24 FA	Band Toggle
FE 03 C3 10 56 2C	AM
FE 03 C3 10 55 2B	FM
FE 03 C3 10 20 F6	Tune / Preset
FE 03 C3 10 69 3F	Tuning Mode Select
FE 03 C3 10 6A 40	Preset Mode Select
FE 03 C3 10 25 FB	Frequency Direct
FE 03 C3 10 21 F7	Preset Scan
FE 03 C3 10 44 1A	Tuner Display
FE 03 C3 10 45 1B	RDS PTY
FE 03 C3 10 46 1C	RDS TP
FE 03 C3 10 47 1D	RDS TA
FE 03 C3 10 26 FC	FM Mono
NUMERIC KEY COMMANDS	
FE 03 C3 10 2A 00	Number 1
FE 03 C3 10 2B 01	Number 2
FE 03 C3 10 2C 02	Number 3
FE 03 C3 10 2D 03	Number 4
FE 03 C3 10 2E 04	Number 5
FE 03 C3 10 2F 05	Number 6
FE 03 C3 10 30 06	Number 7
FE 03 C3 10 31 07	Number 8
FE 03 C3 10 32 08	Number 9

RSX-1055 HEX	Command Description
FE 03 C3 10 33 09	Number 0
OTHER COMMANDS	
FE 03 C3 10 17 ED	Record Function Select
FE 03 C3 10 16 EC	Dynamic Range
FE 03 C3 10 1F F5	Digital Input Select
FE 03 C3 10 23 F9	Zone 2 / Main
FE 03 C3 10 4C 22	Temporary Center Trim
FE 03 C3 10 4D 23	Temporary Subwoofer Trim
FE 03 C3 10 4E 24	Temporary Surround Trim
FE 03 C3 10 4F 25	Cinema EQ Toggle
FE 03 C3 10 52 28	Front Display On/Off
FE 03 C3 10 FF D5	Display Refresh

Section 2: Feedback String Format

Standard Response String Format

Start	Count	ID	Type	Data						Checksum
0xFE	0x17	0xC3	0x20	Char1	...	Char13	Flag1	...	Flag 8	0xXX

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

The Char1 - Char13 data bytes contain ASCII data representing the text that appears across the front display. It can contain source input, volume, and surround mode data and should be parsed to obtain this information.

The Flag1 - Flag8 data bytes contain data on which of the various icons on the front display are currently illuminated.

The display status uses 2 bits in Flag6 to confirm if the front display is On or Off.

Flag1 - Flag4 Data

	Flag1	Flag2	Flag3	Flag4
Bit0	char1_dot	char8_dot	TAPEM	Tuned
Bit1	char2_dot	char9_dot	MULTI	St (Tuner)
Bit2	char3_dot	char10_dot	4	PTY
Bit3	char4_dot	char11_dot	3	TA
Bit4	char5_dot	char12_dot	2	TP
Bit5	char6_dot	char13_dot	1	RT
Bit6	char7_dot	char8_colon	Coaxial	RDS
Bit7			Optical	RBDS

Flag5 - Flag8 Data

	Flag5	Flag6	Flag7	Flag8
Bit0	Zone	Display Mode 1	SBR	CB
Bit1	Dynamic Range	Display Mode 0	SBL	S
Bit2	DSP		EX	LFE
Bit3	HDCD	Standby LED	Sur	SR
Bit4	Dolby 3 Stereo	OSD	THX	SL
Bit5	Dolby PLII	Auto	dts ES	FR
Bit6	Dolby Pro Logic	Memory	dts	C
Bit7	Dolby Digital	Preset	MPEG	FL

Display Status

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