Rotel RSP-976
RS232 HEX Protocol

Date	Version	Update Description
February 2, 2012	1.00	Original Specification

The RS232 protocol structure for the RSP-976 is detailed below. This is a HEX based communication protocol.

Connection Settings

Baud Rate	Parity	Valid Data Bits	Stop Bit Value	Handshaking	Data Type
2400	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	0xC0	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

RSP-976 HEX	Command Description
POWER & VOLUME COMMANDS	
FE 03 C0 10 0A DD	Power Toggle
FE 03 C0 10 4A 1D	Power Off
FE 03 C0 10 4B 1E	Power On
FE 03 C0 10 0B DE	Volume Up
FE 03 C0 10 0C DF	Volume Down
FE 03 C0 10 18 EB	Mute Toggle
SOURCE SELECTION COMMANDS	
FE 03 C0 10 02 D5	Source CD
FE 03 C0 10 03 D6	Source Tuner
FE 03 C0 10 04 D7	Source Tape
FE 03 C0 10 05 D8	Source Video 1
FE 03 C0 10 06 D9	Source Video 2
FE 03 C0 10 07 DA	Source Video 3
FE 03 C0 10 08 DB	Source Video 4
FE 03 C0 10 09 DC	Source Video 5
FE 03 C0 10 15 E8	Source 5.1 Channel Input
TONE CONTROL COMMANDS	
FE 03 C0 10 0D E0	Treble Up
FE 03 C0 10 0E E1	Treble Down
FE 03 C0 10 0F E2	Bass Up
FE 03 C0 10 10 E3	Bass Down
SURROUND MODE COMMANDS	
FE 03 C0 10 11 E4	Stereo
FE 03 C0 10 12 E5	Dolby 3 Stereo
FE 03 C0 10 13 E6	Dolby Pro Logic
FE 03 C0 10 14 E7	DSP Music Modes
OTHER COMMANDS	
FE 03 C0 10 17 EA	Record Function Select
FE 03 C0 10 23 F6	Zone 2 / Main
FE 03 C0 10 4C 1F	Temporary Center Trim
FE 03 C0 10 4D 20	Temporary Subwoofer Trim
FE 03 C0 10 4E 21	Temporary Surround Trim
FE 03 C0 10 16 E9	Dolby Dynamic Range
FE 03 C0 10 FF D2	Display Refresh

Section 2: Feedback String Format

Standard Response String Format

String 1 – Display Icon Data

Start	Count	Device ID	Type	Data					Checksum
0xFE	0x12	0x21	0x20	Flag1	Flag2	Flag3	Flag4	Flag5	0xXX

String 2 – Character Display Data

Start	Count	Device ID	Type	Data1 – Data13 (14 Bytes)	Checksum
0xFE	0x0F	0xC0	0x20	ASCII Characters	0xXX

The flag data in String 1 can be parsed to obtain information about which icons are illuminated on the front panel display.

Flag1 – Flag5 Data

	Flag1	Flag2	Flag3	Flag4	Flag5
Bit0	Standby LED	5.1CH		OSD	
Bit1		DSP Mode		Preset	
Bit2		Dolby 3 St	4	Memory	
Bit3		Pro Logic	3	Auto	Tuner Disp
Bit4		Dolby Digital	2	Tuned	
Bit5		dts	1	Stereo	
Bit6			Coaxial		
Bit7	Dynamic		Optical		

The ASCII data in String 2 represents the 13 line front panel display and will contain the source and record source name information as shown on the front panel.