



## Rotel RSP-1570 RS232 HEX Protocol

Date	Version	Update Description
February 3, 2012	1.00	Original Specification

The RS232 protocol structure for the RSP-1570 is detailed below. This is a HEX based communication protocol.

### Connection Settings

Baud Rate	Parity	Valid Data Bits	Stop Bit Value	Handshaking	Data Type
115200	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, delimiter, etc.

### Standard Command String Format

Start	Count	Device ID	Type	Key	Checksum
0xFE	0x03	0xA3	0x10	0xFF	0xFF

*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 bytes 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.

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### Table 1 - Type 10 Primary Commands

RSP-1570 HEX	Command Description
<b>POWER &amp; VOLUME COMMANDS</b>	
FE 03 A3 10 0A C0	Power Toggle
FE 03 A3 10 4A 00	Power Off
FE 03 A3 10 4B 01	Power On
FE 03 A3 10 0B C1	Volume Up
FE 03 A3 10 0C C2	Volume Down
FE 03 A3 10 1E D4	Mute Toggle
FE 03 A3 10 71 27	Power Off All Zones
<b>SOURCE SELECTION COMMANDS</b>	
FE 03 A3 10 02 B8	Source CD
FE 03 A3 10 03 B9	Source Tuner
FE 03 A3 10 04 BA	Source Tape
FE 03 A3 10 05 BB	Source Video 1
FE 03 A3 10 06 BC	Source Video 2
FE 03 A3 10 07 BD	Source Video 3
FE 03 A3 10 08 BE	Source Video 4
FE 03 A3 10 09 BF	Source Video 5
FE 03 A3 10 15 CB	Source Multi Input
<b>SURROUND MODE COMMANDS</b>	
FE 03 A3 10 11 C7	Stereo / Bypass Toggle
FE 03 A3 10 12 C8	Dolby 3 Stereo
FE 03 A3 10 13 C9	Dolby PLIIx Mode Toggle
FE 03 A3 10 14 CA	DSP Mode Toggle
FE 03 A3 10 53 09	Dolby 3 Stereo / PLIIx Toggle
FE 03 A3 10 54 0A	dts Neo:6 Music/Cinema Toggle
FE 03 A3 10 57 0D	DSP 1
FE 03 A3 10 58 0E	DSP 2
FE 03 A3 10 59 0F	DSP 3
FE 03 A3 10 5A 10	DSP 4

<b>RSP-1570 HEX</b>	<b>Command Description</b>
FE 03 A3 10 5B 11	5 Channel Stereo
FE 03 A3 10 5C 12	7 Channel Stereo
FE 03 A3 10 5D 13	Dolby PLIIX Cinema
FE 03 A3 10 5E 14	Dolby PLIIX Music
FE 03 A3 10 74 2A	Dolby PLIIX Game
FE 03 A3 10 5F 15	Dolby Pro Logic
FE 03 A3 10 60 16	dts Neo:6 Music
FE 03 A3 10 61 17	dts Neo:6 Cinema
FE 03 A3 10 62 18	PLII Panorama Toggle
FE 03 A3 10 63 19	PLII Dimension Up
FE 03 A3 10 64 1A	PLII Dimension Down
FE 03 A3 10 65 1B	PLII Center Width Up
FE 03 A3 10 66 1C	PLII Center Width Down
FE 03 A3 10 68 1E	Dolby Digital EX Toggle
FE 03 A3 10 22 D8	Next Surround Mode
<b>TONE CONTROL COMMANDS</b>	
FE 03 A3 10 0D C3	Treble Up
FE 03 A3 10 0E C4	Treble Down
FE 03 A3 10 0F C5	Bass Up
FE 03 A3 10 10 C6	Bass Down
FE 03 A3 10 67 1D	Tone Control Select
<b>OSD MENU COMMANDS</b>	
FE 03 A3 10 18 CE	OSD Menu
FE 03 A3 10 19 CF	Enter
FE 03 A3 10 1A D0	Cursor Right
FE 03 A3 10 1B D1	Cursor Left
FE 03 A3 10 1C D2	Cursor Up
FE 03 A3 10 1D D3	Cursor Down
<b>OTHER COMMANDS</b>	
FE 03 A3 10 17 CD	Record Function Select
FE 03 A3 10 16 CC	Dynamic Range
FE 03 A3 10 1F D5	Digital Input Select
FE 03 A3 10 23 D9	Zone 2 / Main
FE 03 A3 10 4C 02	Temporary Center Trim
FE 03 A3 10 4D 03	Temporary Subwoofer Trim
FE 03 A3 10 4E 04	Temporary Surround Trim
FE 03 A3 10 4F 05	Cinema EQ Toggle
FE 03 A3 10 52 08	Front Display On/Off
FE 03 A3 10 FF B5	Display Refresh
FE 03 A3 10 6E 24	Party Mode Toggle
FE 03 A3 10 75 2B	Output Resolution
FE 03 A3 10 78 2E	HDMI Amp Mode

RSP-1570 HEX	Command Description
FE 03 A3 10 79 2F	HDMI TV Mode
FE 03 A3 10 93 49	Force Factory Default (Requires Main Software V1.2.8)

**Table 2 - Type 14 Main Zone Commands**

**NOTE:** These commands are duplicate functions of the primary commands in the table above bearing the same name, but are discrete for the main zone only. For multi-zone installation applications, it is recommended that the below commands be used where applicable rather than the type 10 commands to avoid zone conflicts.

RSP-1570 HEX	Command Description
<b>MAIN ZONE POWER &amp; VOLUME COMMANDS</b>	
FE 03 A3 14 0A C4	Main Zone Power Toggle
FE 03 A3 14 4A 04	Main Zone Power Off
FE 03 A3 14 4B 05	Main Zone Power On
FE 03 A3 14 00 BA	Main Zone Volume Up
FE 03 A3 14 01 BB	Main Zone Volume Down
FE 03 A3 14 1E D8	Main Zone Mute Toggle
FE 03 A3 14 6C 26	Main Zone Mute On
FE 03 A3 14 6D 27	Main Zone Mute Off
<b>MAIN ZONE SOURCE SELECTION COMMANDS</b>	
FE 03 A3 14 02 BC	Main Zone Source CD
FE 03 A3 14 03 BD	Main Zone Source Tuner
FE 03 A3 14 04 BE	Main Zone Source Tape
FE 03 A3 14 05 BF	Main Zone Source Video 1
FE 03 A3 14 06 C0	Main Zone Source Video 2
FE 03 A3 14 07 C1	Main Zone Source Video 3
FE 03 A3 14 08 C2	Main Zone Source Video 4
FE 03 A3 14 09 C3	Main Zone Source Video 5
FE 03 A3 14 15 CF	Main Zone Source Multi Input

**Table 3 - Type 15 Record Source Commands**

RSP-1570 HEX	Command Description
<b>RECORD SOURCE SELECTION COMMANDS</b>	
FE 03 A3 15 02 BD	Record Source CD
FE 03 A3 15 03 BE	Record Source Tuner
FE 03 A3 15 04 BF	Record Source Tape
FE 03 A3 15 05 C0	Record Source Video 1
FE 03 A3 15 06 C1	Record Source Video 2
FE 03 A3 15 07 C2	Record Source Video 3
FE 03 A3 15 08 C3	Record Source Video 4
FE 03 A3 15 09 C4	Record Source Video 5
FE 03 A3 15 6B 26	Record Follow Main Zone Source

**Table 4 - Type 16 Zone 2 Commands**

RSP-1570 HEX	Command Description
<b>ZONE 2 POWER &amp; VOLUME COMMANDS</b>	
FE 03 A3 16 0A C6	Zone 2 Power Toggle
FE 03 A3 16 4A 06	Zone 2 Power Off
FE 03 A3 16 4B 07	Zone 2 Power On
FE 03 A3 16 00 BC	Zone 2 Volume Up
FE 03 A3 16 01 BD	Zone 2 Volume Down
FE 03 A3 16 1E DA	Zone 2 Mute Toggle
FE 03 A3 16 6C 28	Zone 2 Mute On
FE 03 A3 16 6D 29	Zone 2 Mute Off
FE 03 A3 16 71 2D	Power Off All Zones
<b>ZONE 2 SOURCE SELECTION COMMANDS</b>	
FE 03 A3 16 02 BE	Zone 2 Source CD
FE 03 A3 16 03 BF	Zone 2 Source Tuner
FE 03 A3 16 04 C0	Zone 2 Source Tape
FE 03 A3 16 05 C1	Zone 2 Source Video 1
FE 03 A3 16 06 C2	Zone 2 Source Video 2
FE 03 A3 16 07 C3	Zone 2 Source Video 3
FE 03 A3 16 08 C4	Zone 2 Source Video 4
FE 03 A3 16 09 C5	Zone 2 Source Video 5
FE 03 A3 16 6B 27	Zone 2 Follow Main Zone Source
<b>ZONE 2 OTHER COMMANDS</b>	
FE 03 A3 16 6E 2A	Party Mode Toggle

**Table 5 - Type 17 Zone 3 Commands**

RSP-1570 HEX	Command Description
<b>ZONE 3 POWER &amp; VOLUME COMMANDS</b>	
FE 03 A3 17 0A C7	Zone 3 Power Toggle
FE 03 A3 17 4A 07	Zone 3 Power Off
FE 03 A3 17 4B 08	Zone 3 Power On
FE 03 A3 17 00 BD	Zone 3 Volume Up
FE 03 A3 17 01 BE	Zone 3 Volume Down
FE 03 A3 17 1E DB	Zone 3 Mute Toggle
FE 03 A3 17 6C 29	Zone 3 Mute On
FE 03 A3 17 6D 2A	Zone 3 Mute Off
FE 03 A3 17 71 2E	Power Off All Zones
<b>ZONE 3 SOURCE SELECTION COMMANDS</b>	
FE 03 A3 17 02 BF	Zone 3 Source CD
FE 03 A3 17 03 C0	Zone 3 Source Tuner
FE 03 A3 17 04 C1	Zone 3 Source Tape
FE 03 A3 17 05 C2	Zone 3 Source Video 1

RSP-1570 HEX	Command Description
FE 03 A3 17 06 C3	Zone 3 Source Video 2
FE 03 A3 17 07 C4	Zone 3 Source Video 3
FE 03 A3 17 08 C5	Zone 3 Source Video 4
FE 03 A3 17 09 C6	Zone 3 Source Video 5
FE 03 A3 17 6B 28	Zone 3 Follow Main Zone Source
<b>ZONE 3 OTHER COMMANDS</b>	
FE 03 A3 17 6E 2B	Party Mode Toggle

**Table 6 - Type 18 Zone 4 Commands**

RSP-1570 HEX	Command Description
<b>ZONE 4 POWER &amp; VOLUME COMMANDS</b>	
FE 03 A3 18 0A C8	Zone 4 Power Toggle
FE 03 A3 18 4A 08	Zone 4 Power Off
FE 03 A3 18 4B 09	Zone 4 Power On
FE 03 A3 18 00 BE	Zone 4 Volume Up
FE 03 A3 18 01 BF	Zone 4 Volume Down
FE 03 A3 18 1E DC	Zone 4 Mute Toggle
FE 03 A3 18 6C 2A	Zone 4 Mute On
FE 03 A3 18 6D 2B	Zone 4 Mute Off
FE 03 A3 18 71 2F	Power Off All Zones
<b>ZONE 4 SOURCE SELECTION COMMANDS</b>	
FE 03 A3 18 02 C0	Zone 4 Source CD
FE 03 A3 18 03 C1	Zone 4 Source Tuner
FE 03 A3 18 04 C2	Zone 4 Source Tape
FE 03 A3 18 05 C3	Zone 4 Source Video 1
FE 03 A3 18 06 C4	Zone 4 Source Video 2
FE 03 A3 18 07 C5	Zone 4 Source Video 3
FE 03 A3 18 08 C6	Zone 4 Source Video 4
FE 03 A3 18 09 C7	Zone 4 Source Video 5
FE 03 A3 18 6B 29	Zone 4 Follow Main Zone Source
<b>ZONE 4 OTHER COMMANDS</b>	
FE 03 A3 18 6E 2C	Party Mode Toggle

**Table 7 - Type 30 Volume Direct Commands**

**NOTE:** Volume direct commands range from hex 00 – 60; below is a sample of the commands available.

RSP-1570 HEX	Command Description
<b>VOLUME DIRECT COMMANDS</b>	
FE 03 A3 30 00 D6	Volume Min
FE 03 A3 30 01 D7	Volume 1
FE 03 A3 30 02 D8	Volume 2
FE 03 A3 30 03 D9	Volume 3
FE 03 A3 30 04 DA	Volume 4
FE 03 A3 30 05 DB	Volume 5
FE 03 A3 30 06 DC	Volume 6
FE 03 A3 30 07 DD	Volume 7
FE 03 A3 30 08 DE	Volume 8
FE 03 A3 30 09 DF	Volume 9
FE 03 A3 30 0A E0	Volume 10
FE 03 A3 30 10 E6	Volume 16
FE 03 A3 30 20 F6	Volume 32
FE 03 A3 30 28 FD 01	Volume 40
FE 03 A3 30 40 16	Volume 64
FE 03 A3 30 50 26	Volume 80
FE 03 A3 30 5F 35	Volume 95
FE 03 A3 30 60 36	Volume Max

**Table 8 - Type 32 Zone 2 Volume Direct Commands**

RSP-1570 HEX	Command Description
<b>ZONE 2 VOLUME DIRECT COMMANDS</b>	
FE 03 A3 32 00 D8	Zone 2 Volume Min
FE 03 A3 32 01 D9	Zone 2 Volume 1
FE 03 A3 32 02 DA	Zone 2 Volume 2
FE 03 A3 32 03 DB	Zone 2 Volume 3
FE 03 A3 32 04 DC	Zone 2 Volume 4
FE 03 A3 32 05 DD	Zone 2 Volume 5
FE 03 A3 32 06 DE	Zone 2 Volume 6
FE 03 A3 32 10 E8	Zone 2 Volume 16
FE 03 A3 32 26 FD 01	Zone 2 Volume 38
FE 03 A3 32 30 08	Zone 2 Volume 48
FE 03 A3 32 40 18	Zone 2 Volume 64
FE 03 A3 32 50 28	Zone 2 Volume 80
FE 03 A3 32 5F 37	Zone 2 Volume 95
FE 03 A3 32 60 38	Zone 2 Volume Max

**Table 9 - Type 33 Zone 3 Volume Direct Commands**

RSP-1570 HEX	Command Description
<b>ZONE 3 VOLUME DIRECT COMMANDS</b>	
FE 03 A3 33 00 D9	Zone 3 Volume Min
FE 03 A3 33 01 DA	Zone 3 Volume 1
FE 03 A3 33 02 DB	Zone 3 Volume 2
FE 03 A3 33 03 DC	Zone 3 Volume 3
FE 03 A3 33 04 DD	Zone 3 Volume 4
FE 03 A3 33 05 DE	Zone 3 Volume 5
FE 03 A3 33 06 DF	Zone 3 Volume 6
FE 03 A3 33 10 E9	Zone 3 Volume 16
FE 03 A3 33 24 FD 00	Zone 3 Volume 36
FE 03 A3 33 30 09	Zone 3 Volume 48
FE 03 A3 33 40 19	Zone 3 Volume 64
FE 03 A3 33 50 29	Zone 3 Volume 80
FE 03 A3 33 5F 38	Zone 3 Volume 95
FE 03 A3 33 60 39	Zone 3 Volume Max

**Table 10 - Type 34 Zone 4 Volume Direct Commands**

RSP-1570 HEX	Command Description
<b>ZONE 4 VOLUME DIRECT COMMANDS</b>	
FE 03 A3 34 00 DA	Zone 4 Volume Min
FE 03 A3 34 01 DB	Zone 4 Volume 1
FE 03 A3 34 02 DC	Zone 4 Volume 2
FE 03 A3 34 03 DD	Zone 4 Volume 3
FE 03 A3 34 04 DE	Zone 4 Volume 4
FE 03 A3 34 05 DF	Zone 4 Volume 5
FE 03 A3 34 06 E0	Zone 4 Volume 6
FE 03 A3 34 10 EA	Zone 4 Volume 16
FE 03 A3 34 24 FD 01	Zone 4 Volume 36
FE 03 A3 34 30 0A	Zone 4 Volume 48
FE 03 A3 34 40 1A	Zone 4 Volume 64
FE 03 A3 34 50 2A	Zone 4 Volume 80
FE 03 A3 34 50 39	Zone 4 Volume 95
FE 03 A3 34 50 3A	Zone 4 Volume Max



## Table 11 - Type 40 12V Trigger Direct Commands

**NOTE:** These commands require Main software V1.2.2 to be effective.

RSP-1570 HEX	Command Description
<b>12V TRIGGER DIRECT COMMANDS</b>	
FE 03 A3 40 00 E6	Main Zone 12V Trigger 1 Toggle
FE 03 A3 40 01 E7	Main Zone 12V Trigger 2 Toggle
FE 03 A3 40 02 E8	Main Zone 12V Trigger 3 Toggle
FE 03 A3 40 03 E9	Main Zone 12V Trigger 4 Toggle
FE 03 A3 40 04 EA	Main Zone 12V Trigger 5 Toggle
FE 03 A3 40 05 EB	Main Zone 12V Trigger 6 Toggle
FE 03 A3 40 06 EC	Zone 2 12V Trigger 1 Toggle
FE 03 A3 40 07 ED	Zone 2 12V Trigger 2 Toggle
FE 03 A3 40 08 EE	Zone 2 12V Trigger 3 Toggle
FE 03 A3 40 09 EF	Zone 2 12V Trigger 4 Toggle
FE 03 A3 40 0A F0	Zone 2 12V Trigger 5 Toggle
FE 03 A3 40 0B F1	Zone 2 12V Trigger 6 Toggle
FE 03 A3 40 0C F2	Zone 3 12V Trigger 1 Toggle
FE 03 A3 40 0D F3	Zone 3 12V Trigger 2 Toggle
FE 03 A3 40 0E F4	Zone 3 12V Trigger 3 Toggle
FE 03 A3 40 0F F5	Zone 3 12V Trigger 4 Toggle
FE 03 A3 40 10 F6	Zone 3 12V Trigger 5 Toggle
FE 03 A3 40 11 F7	Zone 3 12V Trigger 6 Toggle
FE 03 A3 40 12 F8	Zone 4 12V Trigger 1 Toggle
FE 03 A3 40 13 F9	Zone 4 12V Trigger 2 Toggle
FE 03 A3 40 14 FA	Zone 4 12V Trigger 3 Toggle
FE 03 A3 40 15 FB	Zone 4 12V Trigger 4 Toggle
FE 03 A3 40 16 FC	Zone 4 12V Trigger 5 Toggle
FE 03 A3 40 17 FD 00	Zone 4 12V Trigger 6 Toggle

## Section 2: Feedback String Format

### Standard Response String Format

Start	Count	ID	Type	Data						Checksum
0xFE	0x31	0xA3	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.

**Note:** The Zone 2/3/4 bits were added with Main software V1.1.8. These bits will toggle when their respective Zone is active so zone power status can be tracked.

#### Flag1 – Flag5 Data

	Flag1	Flag2	Flag3	Flag4	Flag5
Bit0	A	x	Display Mode0	SB	CBL
Bit1	5	II	Display Mode1	Zone 4	CBR
Bit2	4	HDMI	Zone 2	Zone 3	SW
Bit3	3	EX	Standby LED	<	SR
Bit4	2	ES		>	SL
Bit5	1	dtS		7.1	FR
Bit6	Coaxial	Pro Logic		5.1	C
Bit7	Optical	Dolby Digital		Zone	FL

#### Display Status

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

### 12V Trigger Status String Format

**NOTE:** This response string was added with Main software V1.2.2.

Start	Count	ID	Type	Data					Checksum
0xFE	0x07	0xA3	0x21	Flag1	Flag2	Flag3	Flag4	Flag5	0xXX

#### 12V Trigger Status Flag1 – Flag5 Data

	Flag1: All	Flag2: Main	Flag3: Zone 2	Flag4: Zone 3	Flag5: Zone 4
Bit0	Trigger 1	Trigger 1	Trigger 1	Trigger 1	Trigger 1
Bit1	Trigger 2	Trigger 2	Trigger 2	Trigger 2	Trigger 2
Bit2	Trigger 3	Trigger 3	Trigger 3	Trigger 3	Trigger 3
Bit3	Trigger 4	Trigger 4	Trigger 4	Trigger 4	Trigger 4
Bit4	Trigger 5	Trigger 5	Trigger 5	Trigger 5	Trigger 5
Bit5	Trigger 6	Trigger 6	Trigger 6	Trigger 6	Trigger 6
Bit6					
Bit7					

