



## Rotel RT-1080 RS232 HEX Protocol

Date	Version	Update Description
February 6, 2012	1.00	Original Specification

The RS232 protocol structure for the RT-1080 is detailed below. This is a HEX based communication protocol.

### Connection Settings

Baud Rate	Parity	Valid Data Bits	Stop Bit Value	Handshaking	Data Type
4800	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	0x21	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.

## Section 1: Control Command List

RT-1080 HEX	Command Description
<b>TUNER COMMANDS</b>	
FE 03 21 10 19 4D	Tune Up
FE 03 21 10 18 4C	Tune Down
FE 03 21 10 0D 41	Memory
FE 03 21 10 0B 3F	Band Toggle
FE 03 21 10 08 3C	Auto Tuning
FE 03 21 10 09 3D	Tune / Preset
FE 03 21 10 27 5B	Frequency Direct
FE 03 21 10 0A 3E	Preset Scan
FE 03 21 10 10 44	Tuner Display
FE 03 21 10 14 48	RDS PTY
FE 03 21 10 13 47	RDS TP
FE 03 21 10 17 4B	RDS TA
FE 03 21 10 12 46	RDS AF
FE 03 21 10 11 45	FM Mono
FE 03 21 10 15 49	Antenna Attenuation
FE 03 21 10 16 4A	FM IF Wide/Narrow Toggle
FE 03 21 10 1A 4E	Antenna A/B Toggle
<b>NUMERIC KEY COMMANDS</b>	
FE 03 21 10 07 3B	Number 0
FE 03 21 10 0F 43	Number 1
FE 03 21 10 00 34	Number 2
FE 03 21 10 01 35	Number 3
FE 03 21 10 02 36	Number 4
FE 03 21 10 03 37	Number 5
FE 03 21 10 0E 42	Number 6
FE 03 21 10 04 38	Number 7
FE 03 21 10 05 39	Number 8
FE 03 21 10 06 3A	Number 9
<b>OTHER COMMANDS</b>	
FE 03 21 10 26 5A	Display Dimmer
FE 03 21 10 FF 33	Display Refresh

## Section 2: Feedback String Format

### Standard Response String Format

Start	Count	ID	Type	Data						Checksum
0xFE	0x12	0x21	0x20	Flag1	...	Flag5	Char1	...	Char11	0xFF

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

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

The Char1 - Char11 data bytes contain ASCII data representing the text that appears across the front display. It can contain current frequency information, as well as RDS radio text data and should be parsed to obtain this information.

#### Flag1 – Flag5 Data

	Flag1	Flag2	Flag3	Flag4	Flag5
<b>Bit0</b>		Narrow	RDS	AM	Signal Bar 2
<b>Bit1</b>		Tuned	RBDS	Signal Bar 9	Signal Bar 1
<b>Bit2</b>		Stereo	A	Signal Bar 8	Signal Bar 0
<b>Bit3</b>		AF	B	Signal Bar 7	
<b>Bit4</b>	Preset	TA	Ant	Signal Bar 6	
<b>Bit5</b>	Memory	TP	FM	Signal Bar 5	
<b>Bit6</b>	Auto	EON	MW	Signal Bar 4	
<b>Bit7</b>	Local	RT	LW	Signal Bar 3	