



## Rotel RT-955 RS232 HEX Protocol

Date	Version	Update Description
February 6, 2012	1.00	Original Specification

The RS232 protocol structure for the RT-955 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	0x20	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-955 HEX	Command Description
<b>TUNER COMMANDS</b>	
FE 03 20 10 F1 24	Tune Up
FE 03 20 10 F0 23	Tune Down
FE 03 20 10 0B 3E	Memory
FE 03 20 10 0C 3F	Band Toggle
FE 03 20 10 0A 3D	Auto Tuning
FE 03 20 10 09 3C	Tune / Preset
FE 03 20 10 17 4A	Frequency Direct
FE 03 20 10 08 3B	Preset Scan
FE 03 20 10 15 48	Tuner Display
FE 03 20 10 10 43	RDS PTY
FE 03 20 10 12 45	RDS TP
FE 03 20 10 11 44	RDS TA
FE 03 20 10 16 49	RDS AF
FE 03 20 10 1A 4D	FM Mono
FE 03 20 10 14 47	Antenna Attenuation
FE 03 20 10 19 4C	FM IF Wide/Narrow Toggle
<b>NUMERIC KEY COMMANDS</b>	
FE 03 20 10 0D 40	Number 0
FE 03 20 10 03 36	Number 1
FE 03 20 10 02 35	Number 2
FE 03 20 10 01 34	Number 3
FE 03 20 10 00 33	Number 4
FE 03 20 10 0E 41	Number 5
FE 03 20 10 07 3A	Number 6
FE 03 20 10 06 39	Number 7
FE 03 20 10 05 38	Number 8
FE 03 20 10 04 37	Number 9
<b>OTHER COMMANDS</b>	
FE 03 20 10 0F 3D	Label
FE 03 20 10 FF 32	Display Refresh

## Section 2: Feedback String Format

### Standard Response String Format

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

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
Bit0		Narrow	RDS	AM	
Bit1		Tuned	RBDS	Signal Bar 9	
Bit2		Stereo	A	Signal Bar 8	
Bit3		AF	B	Signal Bar 7	
Bit4	Preset	TA	Ant	Signal Bar 6	Signal Bar 2
Bit5	Memory	TP	FM	Signal Bar 5	Signal Bar 1
Bit6	Auto	EON	MW	Signal Bar 4	Signal Bar 0
Bit7	Local	RT	LW	Signal Bar 3	Standby LED

#### Radio Text Data String Format – Block 1

Start	Count	ID	Type	Data			Checksum
0xFE	n	0x20	0x21	RT1	...	RTn-2	0xXX

#### Radio Text Data String Format – Block 2

Start	Count	ID	Type	Data			Checksum
0xFE	n	0x20	0x22	RT1	...	RTn-2	0xXX

#### Radio Text Data String Format – Block 3

Start	Count	ID	Type	Data			Checksum
0xFE	n	0x20	0x23	RT1	...	RTn-2	0xXX

#### Radio Text Data String Format – Block 4

Start	Count	ID	Type	Data			Checksum
0xFE	n	0x20	0x24	RT1	...	RTn-2	0xXX

#### Radio Text Data String Format – Block 5

Start	Count	ID	Type	Checksum
0xFE	0x02	0x20	0x25	0xXX

RT1-RTn-2 are ASCII characters containing Radio Text data.