

## ELIUM RS232 Protocol Description

### 1. General

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Revision: 2.0

Model: DVB IRD Receiver, DVB HCR Receiver

Scope: The goal of this document is to describe how ELIUM Receiver can be controlled through RS232 connector (RS-RC mode).

### 2. The RS232 attachment

One of the many features implemented in ELIUM Receiver application is the possibility of bidirectional controlling the Receiver through RS232 Protocol.

### 3. Example application

ELIUM IRD Receiver can be controlled from your PC. Be aware that only two wires of nine are used (RX and TX).

### 4. Working conditions

ELIUM IRD Receivers chars only if the following conditions are fulfilled:

- Baud: 115.200
- Parity: none
- Data Bits: 8
- Stop Bits: 1
- Flow Control: none

### 5. Attention:

Please mention that after switching on the unit by pushing the Power Switch, the unit is starting and during this procedure should not be disturbed. If you send anything during the starting procedure, the unit can go to Firmware update procedure. So it is recommended waiting until receive text information from application part "All units have launched properly".

### 6. Note:

In certain moments ELIUM IRD Receiver sent other "#" lines too.  
The syntax is: #?/text/?#

They give information about: Boot, Application Version etc. These lines should not be taken into account.

## 7. Commands without additional return value

Each command starts with "<" char and ends with ">". Immediately after ">" sign is received, command will be performed.

If command is not recognized (for example, if <ABC> command is sent), the following text should appear on your terminal window:

```
#COMMAND: <ABC> 3 char(s)
#ERROR: Command not supported
```

If command is supported and was received correctly you should get:

```
#COMMAND : <ON> 2 char (s)
#OK: Command performed
```

The line "#COMMAND:" is sent before command is performed. It only indicates that certain string of chars was received by Receiver. After that, command is performed and, if this action is finished, the line "#OK" should be sent.

In order to simplify (from programmer point of view) the reception of responses (so called confirmations) the first sign sent from Receiver is always "#". So, host should wait for "#", the next letter should indicate whether everything was all right or not (#C, #E or #C, #O)

Command	Description
<REB>	Reboot Receiver. Parameters are not erased.
<SSS n>	Set RS232 Baud Rate Example values are: 9600, 19200, 38400, 115200 but user can set any speed. However, Boot Loader will not change its Baud Rate which is 115.200. Only application may work with the new speed. Baud Rate will be changed immediately. No #OK: confirmation is given but if an error occur, #ERROR: line is sent. Baud Rate value can be written to internal Receiver memory <SAV> or <OFF>. After that, application will always start with the new Baud Rate.
<CMX n>	Set cooler maximum temperature (n=50, 55, 60, 65, 70, 75)
<CMN n>	Set cooler minimum temperature (n=20, 25, 30, 35, 40, 45)
<TXT 1>	Teletext on
<TXT 0>	Teletext off

<TXT n>	Select Teletext page (n=0 .. ?)
<EPG 1>	EPG Electronic Program Guide on
<EPG 0>	EPG Electronic Program Guide off
<EPG R>	EPG move to right site
<EPG L>	EPG move to left site
<EPG U>	EPG move up
<EPG D>	EPG move down
<EPG I>	EPG get event information of the selected event
<EPG E>	EPG leave event information, move back to EPG
<CPI 1>	Current Program Information on
<CPI 0>	Current Program Information off
<CPI U>	Current Program Information scroll up
<CPI D>	Current Program Information scroll down
<FCP 1>	Freeze current Picture on
<FCP 0>	Freeze current Picture off
<AVM 1>	Audio and Multifeed Option on
<AVM 0>	Audio and Multifeed Option off
<AVM U>	Audio and Multifeed Option move up
<AVM D>	Audio and Multifeed Option move down
<RCL>	Return to last Channel
<MNU>	Menue
<EXT>	Exit and leave Menue
<CNF>	Confirm the selected Option
<NAV U>	Move up
<NAV D>	Move down
<NAV L>	Move left
<NAV R>	Move right

## 8. Commands with additional return value

Each command starts with "<" char and ends with ">". Immediately after ">" sign is received, command will be performed.

If command is not recognized (for example, if <ABC> command is sent), the following text should appear on your terminal window:

```
#COMMAND: <ABC> 3 char(s)
#ERROR: Command not supported
```

If command is supported and was received correctly you should get:

```
#COMMAND: <PRT 6> 5 char(s)
#OK: Command performed
#RET: TV;6;ProSieben
```

Command	With Return Value
<ON>	Turn on Receiver (doesn't work in normal mode) #RET: On
<OFF>	Turn off Receiver (doesn't work in StandBy mode) #RET: Off
<TTT>	Turn to TV Mode (doesn't work in TV Mode) #RET: TV
<TTR>	Turn to Radio Mode (doesn't work in Radio Mode) #RET: Radio
<PRT n>	Change TV Channel (n is a number) #RET: TV;6;ProSieben
<PRR n>	Change Radio Channel (n is a number) #RET: Radio;125;SkyRadio
<PRT u>	Switch TV Channel up (current Channel - 1) #RET: TV;5;RTL
<PRT d>	Switch TV Channel down (current Channel + 1) #RET: TV;7;Sat1
<PRR u>	Switch Radio Channel up (current Channel - 1) #RET: Radio;124;CNNRadio
<PRR d>	Switch Radio Channel down (current Channel + 1) #RET: Radio;126;FunRadio

<GCS>	Get Current Status (On or Standby) #RET: On #RET: Off
<GCM>	Get Current Mode (TV or Radio) #RET: TV #RET: Radio
<GNT>	Get number of TV Channels #RET: 1126
<GNR>	Get number of Radio Channels #RET: 558
<GCC>	Get Current Channel (Channel Number) #RET: 11
<GCP>	Get Current Program (Name of Program) #RET: Eurosport
<GCV>	Get Current Volume (Level of Volume) #RET: 25
<GCT>	Get Current Time (Day, Month, Year, Hour, Minute) #RET: 24;10;07;11;26
<GCL>	Get Channel list (List of TV and Radio Channels including numbering)  The table is sent immediately after line: #RET: At the end of transmission line, #END: is sent.
<GST>	Get status of Teletext #RET: On #RET: Off
<GPT>	Get current page of Teletext #RET: 54 #RET: Off
<GSQ>	Get Signal quality and power information of the current channel #RET: 99;95
<GTC>	Get temperature from cooler sensor #RET: 54
<VOL n>	Change Volume (n=0 .. 100) #RET: 25
<SBR n>	Change brightness (n=0 .. 100) #RET: 45
<SCO n>	Change contrast (n=0 .. 100) #RET: 55

<SSA n>	Change saturation (n=0 .. 100) #RET: 50
<GDB>	Get Data Base from Receiver. The Data Base includes several tables: <ul style="list-style-type: none"> <li>- Satoperators (List of Satellites)</li> <li>- Satchannels (List of Transponders)</li> <li>- Programs (List of TV and Radio Channels)</li> </ul> The tables are sent immediately after line: #RET: At the end of transmission line, #END: is sent.
<GPI>	Get Programme Info. This command returns several information regarding the current programme: <ul style="list-style-type: none"> <li>- current mode TV or Radio</li> <li>- number of channel</li> <li>- name of channel</li> <li>- title of currently broadcasted event</li> <li>- duration of currently broadcasted event (in seconds)</li> <li>- time remaining to the end of the event (in seconds)</li> </ul> #RET: TV;7;ProSieben;taff.;3660;1262  This data is taken from Transport Stream. Therefore, host should wait some time before <GPI> command is sent (typically several seconds) after switching on a new channel. Otherwise, empty strings may be returned (#RET:;;;).