



## RS232 control of the FM-Tuner T 1210 R

The T1210R can be controlled by any control device having a RS232 serial output port (PC, CRESTRON home automation system etc.) through the T+A RS232/R-Link interface adaptor.

For details about connecting and operating the adaptor see the user manual of the adaptor "UM\_RS232\_Adapt.doc".

Settings for the RS232 interface of the control device are as follows:

Baudrate:	115.200
Data Bits:	8
Stop Bits:	1
Parity:	none
Flow Control:	none

### T+A RS\_232 Protocol

The T1210R uses the standard T+A RS232 command protocol as described in detail in the documents "TA\_RS232\_protocol.doc" and "RS\_232\_Command\_Codes.doc".

### Format of the command telegrams

A command telegram to the T1210R consists of 6 bytes. The complete telegram should be sent without pauses between the bytes.

Example: SYSTEM\_ON command

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6
RS232 adaptor Address	R-Link command length <small>(R-Link address + R-Link command + R-Link flag byte = 0x03)</small>	R-Link Address <small>(0x24=TUNER)</small>	R-Link command <small>(here: NEXT = 0x34) *see table T1210R commands</small>	R-Link byte	flagcheck sum = sum of bytes 1..5 mod. 0x100
<b>0x01</b>	<b>0x03</b>	<b>0x24</b> <small>(see below)</small>	<b>0x34</b>	<b>0x02</b>	<b>0x5E</b>

Byte 1, 2, 3, 5 : for the T1210R these bytes have the fixed values as shown in the table below.

Byte 4 : R-Link command according to the table of RCII commands (see List of T1210R commands below)

Byte 6 : check sum == (byte1+byte2+byte3+byte4+byte5) modulo 0x100

## Format of the acknowledge (ACK) telegrams

The T1210R will process each received command telegram and it will send an acknowledge telegram approx. 25...35 ms after receiving the command.

The ACK telegram consists of 2 bytes:

**Byte\_1** is the RS232 address of the command telegram received before (=byte 1 of the command telegram = 0x01).

**Byte\_2** is the acknowledge byte. If this byte is equal to the check sum of the command telegram (byte6 of the command) then the command was received correctly.

If byte 2 has a value different from the check sum of the command, an error has occurred (see table below).

Format of the ACK telegram:

Byte 1	Byte 2
RS232 address	ACK byte
<b>0x01</b>	= check sum of command:            command correctly received = check sum -1:                    command ignored (system busy) = check sum -2:                    command not executed
	Note: If no ACK telegram is received within 35 milli-seconds after sending a command, there is either a hardware problem (cable etc.) or the telegram is erroneous (wrong address, wrong check sum ....)

After the ACK telegram, the T1210R is ready for the next command.

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## List of T1210R commands

Command	Command Code (HEX)	toggle	Remark
ON_OFF	0x01	x	Switch Tuner ON or OFF (toggle between ON & OFF)
Tuner ON	0x57		Switch Tuner ON
NEXT (> )	0x34		Select next higher Preset
PREV ( <)	0x2A		Select next lower Preset
FastForward (>>)	0x25		Tuning step upwards
FastReverse (<<)	0x1A		Tuning step downwards
OK	0x26		
0	0x03		Direct numeric PRESET selection.  Note: For Presets > 9 send two digits with approx. 100...200 ms space between the two digits.
1	0x3A		
2	0x06		
3	0x16		
4	0x02		
5	0x09		
6	0x3B		
7	0x31		
8	0x11		
9	0x39		
F1/F2	0x32	x	Function 1/2 (Wide/Narrow)

Note:

For a complete list of all R-Link source commands refer to the document "RS\_232\_Command\_Codes.doc".