RS232 control of the **SACD1250**

Beginning with Software **V1.10** the SACD1250 can be controlled by any control device having a RS232 serial output port (PC, CRESTRON home automation system etc.) through the built in RS232 interface or the external 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 SACD1250 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 SACD1250 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 (R-Link address + R-Link command + R-Link flag byte = 0x03)	R-Link Address (0x22=CD)	R-Link command (here: SystemON = 0x57) *see table SACD1250 commands	R-Link flag byte	check sum = sum of bytes 1..5 mod. 0x100
0x01	**0x03**	**0x22** (see below)	**0x57**	**0x02**	**0x7F**

Byte 1, 2, 3, 5 : for the SACD1250 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 "RS_232_Command_Codes.doc")

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

Format of the acknowledge (ACK) telegrams

The SACD1250 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	
0x01	= check sum of command: = check sum –1: = check sum –2:	command correctly received command ignored (system busy) 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 SACD1250 is ready for the next command.

List of SACD1250 commands

Command	Command Code (HEX)	toggle	Remark
ON_OFF	0x01	x	better use discrete System ON + OFF codes
System ON	0x57		
System Standby	0x77		
System OFF	0x7A		
CD/DVD	0x23		
CD	0x45		
PLAY	0x12		
PAUSE	0x05		
STOP	0x24		
NEXT/UP	0x34		F6 cursor
PREV/DOWN	0x2A		F6 cursor
FastForward/RIGHT	0x25		F6 cursor
FastBackwards/LEFT	0x1A		F6 cursor
OK	0x26		
0	0x03		
1	0x3A		
2	0x06		
3	0x16		
4	0x02		
5	0x09		
6	0x3B		
7	0x31		
8	0x11		
9	0x39		
F1	0x83	x	SACD Multichannel/Stereo/CDDA
F3	0x85	x	Next OVS-Filter
F4	0x8D	x	Invert on/off
F5	0x8E	x	Repeat mode
F6	0x8F	x	Time mode
Fast reverse	0xCA		
Fast forward	0xCB		
Previous	0xCC		
Next	0xCD		
Open/Close	0xCE	x	

Note: For a complete list of all R-Link source commands refer to the document “RS_232_Command_Codes.doc”.