

## RS232 Protocol

The protocol is accessed via the rear panel RS232C port at 9600,n,8,1 with no handshaking.

All data consists of ASCII bytes.

All commands end with a \r Carriage Return character, ASCII value 13 decimal.

### The basic format for a command is:

1	2	3	4	5	6	7....	
#	Group	,	Command	,	Data	\r	

## Command groups

Commands are split into the following groups:

Command group	Description
1	Control commands
2	Setup commands
3	Control replies
4	Setup replies
5	Error messages

The following are parameters for some of the commands:

Sources (default names)	
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	BNC
6	AES/EBU
7	Bluetooth
8	USB

Input Word Width	
00	Invalid
01	16 bits
02	17 bits
03	18 bits
04	19 bits
05	20 bits
06	21 bits
07	22 bits
08	23 bits
09	24 bits

Input Sampling Frequency	
00	Invalid
01	32kHz
02	44.1kHz
03	48kHz
04	88.2kHz
05	96kHz
06	176.4kHz
07	192kHz

Volume is a value between 000 and 096 as the -dB level in 1dB steps.

Balance is a value between 0 (full left) and 16 (full right) with 8 being centre.

## Group 1: Control Commands

Command	Description	Command data		Example	Example Reply
01	Source Select	Source		#1,01,x	#3,01,x
02	Select Next Source			#1,02,	#3,01,x
03	Select Previous Source			#1,03,	#3,01,x
04	Get Input Word Width			#1,04,	#3,04,xx
05	Get Input Sampling Frequency			#1,05,	#3,05,xx
12	Get Volume			#1,12,	#3,12,xxx
13	Goto Volume	volume		#1,13,xxx	#3,13,xxx
14	Power	0 – Standby 1 - On		#1,14,0 #1,14,1	#3,14,x
15	LCD Brightness	0 – Off 1 – Dim 2 - Bright		#1,15,0 #1,15,1 #1,15,2	#3,15,x
40	Select Filter	x	1 – Lin 2 – Min 3 – Steep	#1,40,x,y: #1,40,1 (sets Lin filter leaving phase unchanged) #1,40,2,0 (sets Min filter with normal phase) #1,40,3,1 (sets Steep filter with inverted phase)	#3,41,x,y
		y	0 – normal 1 – Inverted phase		
41	Get Filter			#1,41,	#3,41,x,x
42	Volume Up			#1,42,	#3,42,xxx
43	Volume Down			#1,43,	#3,43,xxx
44	Mute			#1,44,	#3,44,

45	UnMute		#1,45,	#3,45,
46	Set Balance	00 - Max Left 08 - Balanced 16 - Max Right	#1,46,xx	#3,46,xx
47	Balance Right		#1,47,	#3,47,xx
48	Balance Left		#1,48,	#3,48,xx
49	Set Trigger	0 - Low 1 - High	#1,49,x	#3,49,x
50	Get Headphone Volume		#1,50,	#3,50,xxx
52	Headphone Volume Up		#1,52,	#3,52,xxx
53	Headphone Volume Down		#1,53,	#3,53,xxx

Headphones must be inserted to adjust the headphone volume.

## Group 2: Setup commands

Command	Description	Command Data	Example	Example Reply
01	Software Version	<No data>	#2,01,	#4,01,x.x
02	DSP Version	<No data>	#2,02,	#4,02,xx.xx
04	Set Source Name	source ', ' name max 8 chars	#2,04,x,xxxxxxxx	#4,04,x,xxxxxxxx
05	Get Source Name	Source	#2,05,x,	#4,05,x,xxxxxxxx

### Group 3: Replies from Control Commands

Command	Description	Reply Data	Example
01	Selected Source	Source	#3,01,x
04	Input Word Width		#3,04,xx
05	Input Sampling Frequency		#3,05,xx
12	Volume	volume	#3,12,xxx
13	Set Volume	volume	#3,13,xxx
14	Power	0 – Standby 1 - On	#3,14,x
15	LCD Brightness	0 – Off 1 – Dim 2 - Bright	#3,15,x
22	Headphones in/out	0 – Out 1 - Inserted	#3,22,x
41	Filter	1 – Lin 2 – Min 3 - Steep	#3,41,x,x
42	Volume Up	volume	#3,42,xxx
43	Volume Down	volume	#3,43,xxx
44	Mute		#3,44,
45	UnMute		#3,45,
46	Balance	00 - 16	#3,46,xx
47	Balance Right	00 - 16	#3,47,xx
48	Balance Left	00 - 16	#3,48,xx
49	Trigger Out	0 – Low 1 - High	#3,49,x

50	Headphone Volume	volume	#3,50,xxx
52	Headphone Volume Up	volume	#3,52,xxx
53	Headphone Volume Down	volume	#3,53,xxx

#### Group 4: Replies from Setup Commands

Command	Description	Reply Data	Example
01	Software Version	version number	#4,01,x.x
02	DSP Version	version number	#4,02,xx.xx
04	Set Source Name	source ', ' 8 chars	#4,04,x,xxxxxxxx
05	Get Source Name	source ', ' 8 chars	#4,05,x,xxxxxxxx

#### Group 5: Error Messages

Command	Description	Example
01	Group unknown	#5,01,
02	Command Number unknown	#5,02,
04	Command Data error	#5,03,

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