MYRYAD

MDP 500 Preamplifier Processor

RS-232 command set

Version MDP500-2.2, (applies to S/N 1794 and thereafter) 5.7.2001

Technical specification

9600bps , 8 data bits, one stop bit, no parity binary transmission, no flow control.

Important: An external Baud Rate Converter is required in order to use the RS-232 interface. It is needed because the MDP 500's internal clock is not related to the standard RS-232 data rates. Baud Rate Converters are available from Myryad Systems.

RS-232 baud rate converter and connectors

Baud Rate Converter: This is a small self-contained module which is fitted between the MDP 500 and the system controller, dimensions approximately 63x54x16mm. It has 25-pin "D" i/o connections. The male connector goes towards the MDP 500 and the female towards the system controller.

The RS-232 pin connections are as follows:

MDP 500 9 pin i/o (female)	Signal	Baud Rate Converter 25 pin i/o (male/female)
1	+5V	8
2	Tx out	3
3	Rx in	2
4	No connection	
5	Ground	7
6	No connection	
7	No connection	
8	No connection	
9	No connection	

Input commands

Each user input command must be preceded by the "RS_ENABLE _CONTROL" command which is a string of four bytes: <224><82><83><33>

The following user input commands are all single bytes sent to the MDP 500's RS-232 port. They create various output data depending on the system status, so a comprehensive output data feedback can't be given.

Note: All command and data bytes are given in **decimal** format.

RS-232 Byte	MDP 500 User Command	Description (if not MDP 500 User Command) or additional information	Internal System Command Name
6	STANDBY	Toggle function	UI_STANDBY_TOGGLE
7	MUTE	Toggle function	UI_MUTE
8	SOURCE +		UI_SOURCEPLUS
9	SOURCE -		UI_SOURCEMINUS
10	MODE -		UI_MODEMINUS
11	MODE +		UI_MODEPLUS
12	COMP		UI_COMPRESSION_TOGGLE
13	AUX 2		UI_AUDIO_IN1
14	AUX 1		UI_AUDIO_IN2
15	SAT		UI_AUDIO_IN3
16	VCR		UI_AUDIO_IN4

RS-232 Byte	MDP 500 User Command	Description (if not MDP 500 User Command) or additional information	Internal System Command Name
17	TV		UI_AUDIO_IN5
18	DVD		UI_AUDIO_IN6
19	CD		UI_AUDIO_IN7
20	TUNER		UI_AUDIO_IN8
23	TEST	Enter TEST (Noise) mode – toggle function	UI_NOISE
24	LEVEL	Enter LEVEL mode (as R/C command)	UI_LEVEL
25	DELAY	Enter DELAY mode (as R/C command)	UI_DELAY
31	TAPE MONITOR	Toggle function	UI_TAPEMON_NONSTICKY_TOGGLE
32		MUTE ON – not toggle function	UI_MUTE_ON
33		MUTE OFF – not toggle function	UI_MUTE_OFF
34		Switches to Standby – not toggle function	UI_STANDBY
35		Switches out of Standby – not toggle function	UI_WAKEUP
37		COMP ON – not toggle function	UI_COMPRESSION_ON
38		COMP OFF – not toggle function	UI_COMPRESSION_OFF
39		TAPE MON ON – not toggle function	UI_TAPEMON_OFF
41		TAPE MON OFF – not toggle function	UI_TAPEMON_NONSTICKY_ON
42		Go to MONO mode	UI_MONO
43		Go to STEREO mode	UI_STEREO
44		Go to DOLBY PRO LOGIC mode	UI_PROLOGIC
45		Go to NATURAL music mode	UI_MUSIC1
46		Go to CLUB music mode	UI_MUSIC2
47		Go to CONCERT music mode	UI_MUSIC3
48		Go to PARTY music mode	UI_MUSIC4
49	VOL +		REMOTE_VOLUME_PLUS
50	VOL -		REMOTE_VOLUME_MINUS
53		Volume +/- as front panel control. Does not de-mute in MUTE mode.	FRONTPANEL_VOLUME_PLUS
54			FRONTPANEL_VOLUME_MINUS
68		Increase BASS setting by 1dB	UI_BASS_PLUS
69		Decrease BASS setting by 1dB	UI_BASS_MINUS
70		Increase TREBLE setting by 1dB	UI_TREBLE_PLUS
71		Decrease TREBLE setting by 1dB	UI_TREBLE_MINUS
96		Go to SPEAKER (Bass Management) setup mode Speaker size set using TRIM +/-	UI_SPEAKER
97		Increase SUBWOOFER level setting by 1dB	UI_SUBWOOFER_PLUS
98		Decrease SUBWOOFER level setting by 1dB	UI_SUBWOOFER_MINUS
99	CINE EQ	Toggle function	UI_CINE_EQ_TOGGLE
101	TRIM +	These commands operate in LEVEL and DELAY modes only and after Command #96.	UI_TRIM_PLUS
102	TRIM -		UI_TRIM_MINUS
103	MENU	Toggle function	UI_OSD_SETUP
104	CURSOR UP		UI_CURSOR_UP
105	CURSOR DOWN		UI_CURSOR_DOWN
106	CURSOR LEFT		UI_CURSOR_LEFT
107	CURSOR RIGHT		UI_CURSOR_RIGHT
108	SELECT		UI_CURSOR_ENTER
109	EXIT		UI_ESCAPE
122	STATUS		UI_OSD_STATUS
133	E-BASS	Toggle function	UI_BASS_MIX_TOGGLE
136	7.1 CHANNEL	Toggle function	UI_AUDIO_IN_EXT71_TOGGLE

Direct volume setting

In addition the Master volume may be set *directly* using the command UI_SET_VOLUME.

The format of this command is: <224><82><83><33> (as before)
followed by: <180><data>

<data> = 10…100 where 10 = -90dB, 100 = 0dB
(0dB is maximum direct setting for reasons of safety)

Output data

The following data (in the table below) are sent out to the RS-232 port whenever the status of the current parameter or function is changed. The output data consist of at least three bytes: <command> <data> <EOT>. For example when the Master Volume is changed to –25dB the following three bytes are sent out: 225 75 255.

Alternatively, the full set of output data may be requested without changing any parameter by using the RS_QUERY_SYSTEM_STATUS command. The protocol for this command is to send the single byte <227>. The MDP 500 will then return two header bytes <223><255> followed by all of the output data items listed below in sequence. The communication will thus be:

Controller sends byte <227> to MDP
MDP returns with:
<223>, <255> // header
<225>, <vol>, <255> // RS_VOLUME
……
……
<249>, <TV-system>, <255> // RS_TV_SYSTEM

Output Data Name	RS-232 Byte	Function and data range	<data>
RS_VOLUME	225	Master volume: <data> = 10…120	10 = -90dB, 100 = 0dB, 120 = +20dB
RS_MUTE	226	Mute: <data> = 0/1	0 = unmuted, 1 = muted
RS_AUDIO_SOURCE	227	Source: <data> = 1…8	1…8 = Source number
RS_VIDEO_SOURCE	228	Composite/SVIDEO video source: <data> = 1…6	1…6 = Source number
RS_OPER_MODE	229	<data> = 0/1	0 = Standby, 1 = on
Not used	230	<data> = 1….16	
Not used	231	<data> = 1….6	
Not used	232	<data> = 10….115	
Not used	233	<data> = 0/1	
Not used	234	<data> = 0/1	
RS_TAPEMONITOR	235	TapeMonitor status: <data> = 0/1	0 = TapeMonitor off 1 = TapeMonitor on
RS_STEREO_MODE	236	Stereo mode: <data> = 0…10	0 = Stereo 1 = Dolby Pro Logic 2 = Natural 3 = Club 4 = Concert 6 = Party 7 = Mono downmix 10 = Stereo modes not available
RS_SIGNAL_TYPE	237	Audio signal type: <data> = 0…8	1 = silent, zero signal 2 = Digital PCM 3 = Dolby Digital 4 = DTS 6 = Noise (generated by the DSP) 7 = Analog 8 = Digital Error (unrecognized or corrupted digital signal)
RS_AUDIO_INPUT_TYPE	238	Audio signal physical input type: <data> = 0…2	0 = Analogue 1 = Coaxial 2 = Optical
RS_COMPRESSION	239	Late Night compression status: <data> = 0/1	0 = Compression off 1 = Compression on
RS_CINEEQ	240	Cine EQ status: <data> = 0/1	0 = Cine EQ off, 1 = Cine EQ on
RS_VIDEO_INPUT_TYPE	241	Type of input video signal: <data> = 0…2	0 = unknown / no input signal 1 = Composite 2 = S-Video

RS_TREBLE	242	Treble equalizer: <data> = 0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_BASS	243	Bass equalizer: <data> = 0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_CENTRE	244	Centre trim level: <data> = 0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_SURROUND	245	Surround trim level: <data> = 0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_SUBWOOFER	246	Subwoofer trim level: <data> = 0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_TRIGGER1	247	Trigger 1 status: <data> = 0/1	0 = trigger inactive, 1 = trigger active
RS_TRIGGER2	248	Trigger 2 status: <data> = 0/1	0 = trigger inactive, 1 = trigger active
RS_TV_SYSTEM	249	TV system of the video input signal: <data> = 0…2	0 = unknown, 1 = PAL, 2 = NTSC
Not used	250	<data> = 0/1/2	
RS_EOT	255	Sent out as a last byte of each transmission from the serial port	

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Changes in Myryad RS-232 command set
Version MDP-500-2.2 compared with
Versions MDP-500-1.2 and earlier.

This document was prepared to aid users already familiar with RS-232 control of the MDP 500, by highlighting the areas of change. Version 2.2 applies to MDP 500s with firmware version 2.14 and later (unit serial number 1794 and thereafter).

The firmware version can be confirmed on these units by holding down the Standby button when switching the unit on. After holding down the button for a few seconds the display will indicate the firmware version number. If no number is displayed then the firmware is prior to version 1.07.

1. All user commands now require the RS_ENABLE_CONTROL command to be sent before each input command. This means the four bytes <224><82><83><33> must be sent before each command.

This feature was added to prevent errors caused by spurious bytes being sent from PC/controllers' RS-232 ports – particularly after crashes and re-boots.

2. The master volume control level may now be set directly using the UI_SET_VOLUME command (decimal 180).

3. A full set of System Status information can now be obtained (without changing any parameter) by using the RS_QUERY_SYSTEM_STATUS command (decimal 227).

4. Centre and Surround outputs have been added to the list of output data (244 and 245) which can be accessed either by using RS_QUERY_SYSTEM_STATUS or when changing the relevant parameter.