MYRYAD

MDP 500 (G6) Preamplifier Processor
RS-232 command set

Version MDP500-4.2, (applies to S/N 6001 and thereafter) 13th August 2002

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.

[The MDP 500's "direct" baud rate is 11000bps. If a controller is used which can send and receive directly at this rate, then no separate baud rate converter is necessary.]

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. Myryad supplies each baud rate converter with two 25-to-9 pin "D" adapters so that conventional 9 pin serial interface cables can be used.

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

Single byte user commands

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.

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

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

RS-232 Byte	Internal System Command Name	MDP 500 User Command	Description (if not MDP 500 User Command) or additional information
6	UI_STANDBY_TOGGLE	STANDBY	Toggle function
7	UI_MUTE	MUTE	Toggle function
8	UI_SOURCEPLUS	SOURCE +	
9	UI_SOURCEMINUS	SOURCE -	
10	UI_MODEMINUS	MODE -	
11	UI_MODEPLUS	MODE +	
12	UI_COMPRESSION_TOGGLE	COMP	

RS-232 Byte	Internal System Command Name	MDP 500 User Command	Description (if not MDP 500 User Command) or additional information
13	UI_AUDIO_IN1	AUX 2	Input select
14	UI_AUDIO_IN2	AUX 1	Input select
15	UI_AUDIO_IN3	SAT	Input select
16	UI_AUDIO_IN4	VCR	Input select
17	UI_AUDIO_IN5	TV	Input select
18	UI_AUDIO_IN6	DVD	Input select
19	UI_AUDIO_IN7	CD	Input select
20	UI_AUDIO_IN8	TUNER	Input select
23	UI_NOISE	TEST	Enter TEST (Noise) mode – toggle function
24	UI_LEVEL	LEVEL	Enter LEVEL mode (same as R/C command)
25	UI_DELAY	DELAY	Enter DELAY mode (same as R/C command)
31	UI_TAPEMON_NONSTICKY_TOGGLE	TAPE MONITOR	Toggle function
32	UI_MUTE_ON		MUTE ON – not toggle function
33	UI_MUTE_OFF		MUTE OFF – not toggle function
34	UI_STANDBY		Switches into STANDBY – not toggle function
35	UI_WAKEUP		Switches out of STANDBY – not toggle function
37	UI_COMPRESSION_ON		COMP ON – not toggle function
38	UI_COMPRESSION_OFF		COMP OFF – not toggle function
39	UI_TAPEMON_OFF		TAPE MON OFF – not toggle function
41	UI_TAPEMON_NONSTICKY_ON		TAPE MON ON – not toggle function
42	UI_MONO		Go to MONO mode
43	UI_STEREO		Go to STEREO mode
44	UI_PROLOGIC		Go to DOLBY PRO LOGIC mode
45	UI_MUSIC1		Go to NATURAL music mode
48	UI_MUSIC4		Go to PARTY music mode
49	REMOTE_VOLUME_PLUS	VOL +	De-mutes if in MUTE mode
50	REMOTE_VOLUME_MINUS	VOL -	Sets volume but does not de-mute in MUTE mode
53	FRONTPANEL_VOLUME_PLUS		VOLUME +/- as front panel control. Does not de-mute in MUTE mode.
54	FRONTPANEL_VOLUME_MINUS		
68	UI_BASS_PLUS		Increase BASS setting by 1dB
69	UI_BASS_MINUS		Decrease BASS setting by 1dB
70	UI_TREBLE_PLUS		Increase TREBLE setting by 1dB
71	UI_TREBLE_MINUS		Decrease TREBLE setting by 1dB
97	UI_SUBWOOFER_PLUS		Increase SUBWOOFER level setting by 1dB
98	UI_SUBWOOFER_MINUS		Decrease SUBWOOFER level setting by 1dB
99	UI_CINE_EQ_TOGGLE	CINE EQ	Toggle function
100	UI_AUDIO_IN_EXT71	7.1 CHANNEL	7.1 CH input select – non-toggle function
101	UI_TRIM_PLUS	TRIM +	These commands operate in noise TEST, LEVEL and DELAY modes.
102	UI_TRIM_MINUS	TRIM -	
103	UI_OSD_SETUP	MENU	Toggle function
104	UI_CURSOR_UP	CURSOR UP	
105	UI_CURSOR_DOWN	CURSOR DOWN	
106	UI_CURSOR_LEFT	CURSOR LEFT	
107	UI_CURSOR_RIGHT	CURSOR RIGHT	
108	UI_CURSOR_ENTER	SELECT	
109	UI_ESCAPE	EXIT	
121	UI_BRIGHTNESS	DIM	Dims front panel display – toggle function
122	UI_OSD_STATUS	STATUS	
124	UI_PRESET1		Selects Preset 1 – non-toggle function
125	UI_PRESET2		Selects Preset 2 – non-toggle function
126	UI_PRESET3		Selects Preset 3 – non-toggle function
127	UI_PRESET4		Selects Preset 4 – non-toggle function
128	UI_PRESET5		Selects Preset 5 – non-toggle function
133	UI_BASS_MIX_TOGGLE	E-BASS	Toggle function
136	UI_AUDIO_IN_EXT71_TOGGLE	7.1 CHANNEL	7.1 CH select. Toggle function, same as remote.
156	UI_BASS_MIX_ON		E-BASS On – non-toggle function
157	UI_BASS_MIX_OFF		E-BASS Off – non-toggle function

RS-232 Byte	Internal System Command Name	MDP 500 User Command	Description (if not MDP 500 User Command) or additional information
160	UI_PROLOGIC2_MOVIE		Selects Dolby Pro Logic II Movie mode
161	UI_PROLOGIC2_MUSIC		Selects Dolby Pro Logic II Music mode
162	UI_DTSES_NEO6		Selects DTS-ES Neo:6 Cinema mode
163	UI_DTSES_MATRIX61		Selects DTS-ES Matrix mode (Display reads Neo:6 with DTS 3/2.1 source.)
164	UI_DIRECT		Selects "Direct" mode (stereo with 2-channel sources)
167	UI_DTSES_NEO6_MUSIC		Selects DTS-ES Neo:6 Music mode
168	UI_DOLBY_EX		Selects Dolby Digital EX processing mode
179	UI_STEREO96		Selects Stereo96 mode

Multi-byte User Commands

The following commands need two or more bytes, in the form: <command><data1>[<data2>]…….
Each of these commands must be preceded by the "RS_ENABLE _CONTROL" command in the same way as the single byte commands.

For example, the Master volume may be set *directly* using the command UI_SET_VOLUME.

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

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

Command		Data	Description
UI_SET_VOLUME	1	**180**	**Sets Master volume**
	2	10…100	Master volume: 10 = -90dB, 100 = 0dB
	2	1…16	Zone B source
UI_SET_PL2_PARAMETERS	1	**184**	**Sets Dolby Pro Logic 2 parameters** Note: Parameters can be read without write by sending invalid data bytes, for example by setting all data bytes to 255. See the output data description below.
	2	0/1	Panorama: 0 = Off, 1 = On
	3	0…7	Centre width: 0 = Narrow, 7 = Wide
	4	0…6	Dimension: 0 = Front biased, 6 = Max surround
Output data	1	**216**	**Response to the read command**
	2	0/1	Panorama
	3	0…7	Centre width
	4	0…6	Dimension
UI_SET_NEO6_PARAMETERS	1	**185**	**Sets DTS Neo:6 parameters** Note: Parameters can be read without write by sending invalid data bytes, for example by setting all data bytes to 255. See the output data description below.
	2	0…5	Centre image: 0 = Narrow, 5 = Wide
Output data	1	**251**	**Response to the read command**
	3	0…5	Centre image

Special Commands

The following commands need one, two or several bytes, in the form: <command> [<data1>] [<data2>]……

Command		Data	Description
RS_ENABLE_CONTROL	1	**224**	**Enables the reception of most RS232 commands** Reception is de-activated after every received command, so this command must be sent again before the next command.
	2	82	
	3	83	
	4	33	
RS_QUERY_SYSTEM_STATUS	1	**227**	**Request for various status information**. No need to enable RS control. This command sends out the information described below.
Output data	1	**223**	Header
	2	255	Header EOT
	x	See "Output Data" table overleaf for details of output data and how it is formatted	RS_VOLUME (see ***Output data*** section)
			RS_MUTE (see ***Output data*** section)
			RS_AUDIO_SOURCE (see ***Output data*** section)
			RS_VIDEO_SOURCE (see ***Output data*** section)
			RS_OPER_MODE (see ***Output data*** section)
			RS_DIMMER (see ***Output data*** section)
			RS_TAPEMONITOR (see ***Output data*** section)
			RS_STEREO_MODE (see ***Output data*** section)
			RS_SIGNAL_TYPE (see ***Output data*** section)
			RS_SEND_CHANNEL_INFO (see ***Output data*** section)
			RS_AUDIO_INPUT_TYPE (see ***Output data*** section)
			RS_COMPRESSION (see ***Output data*** section)
			RS_CINEEQ (see ***Output data*** section)
			RS_VIDEO_INPUT_TYPE (see ***Output data*** section)
			RS_TREBLE (see ***Output data*** section)
			RS_BASS (see ***Output data*** section)
			RS_CENTER (see ***Output data*** section)
			RS_SURROUND (see ***Output data*** section)
			RS_SUBWOOFER (see ***Output data*** section)
			RS_TRIGGER1 (see ***Output data*** section)
			RS_TRIGGER2 (see ***Output data*** section)
			RS_TV_SYSTEM (see ***Output data*** section)
RS_QUERY_VERSION	1	**229**	**Sends out the software version number**. RS control must be enabled first.
Output data	1	**219**	
	2	1…255	version number MSB (**4**.12)
	3	0…255	version number LSB (4.**12**)
	4	0…255	Customer/product ID
RS_STORE_EEPROM	1	**230**	**Writes a byte to the EEPROM** Allows system to be setup using system controller, via RS-232. See *Appendix 1* for more information.
	2	0…255	MSB address byte
	3	0…255	LSB address byte
	4	0…255	Stored data
Output data	1	**218**	
	2	0/1	0 = write unsuccessful, 1 = write successful
RS_READ_EEPROM	1	**231**	**Reads a byte from the EEPROM**. Allows system setup to be read back to controller via RS-232. See *Appendix 1* for more information.
	2	0…255	MSB address byte
	3	0…255	LSB address byte
Output data	1	**217**	

	2	0…255	Byte read from the EEPROM

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
<226> <mute> <255> // RS_MUTE
……
……
<249> <TV-system> <255> // RS_TV_SYSTEM

Within this string of data there will also be some items of "null" data. For example null data "250" will appear as:
<250> <255>

Command		Data	Description	
RS_SEND_CHANNEL_INFO	1	**215**	**Channel information of current audio signal**	
	2	b00??????	Channel info	
			bits 0 – 2 (LSB):	000 = 1 + 1 (dual mono)
				001 = 1/0
				010 = 2/0
				011 = 3/0
				100 = 2/1
				101 = 3/1
				110 = 2/2
				111 = 3/2
			bit 3	0 = no LFE, 1 = LFE
			bits 4 – 5	00 = not indicated
				01 = not Dolby Surround decoded
				10 = Dolby surround decoded
				11 = reserved
			bits 6 – 7	Reserved (= 00)
RS_SEND_PL2_PARAMETERS	1	**216**	**Pro Logic II parameters**	
	2	0/1	Panorama: 0 = Off, 1 = On	
	3	0…7	Centre width	
	4	0…6	Dimension	
RS_SEND_READ_EEPROM	1	**217**	**The contents of the EEPROM memory location**. This command is a response only for the RS_READ_EEPROM command. See *Appendix 1* for more information.	
	2	0…255	Data byte read from the EEPROM	
RS_SEND_STORE_EEPROM	1	**218**	**A reply to the RS_STORE_EEPROM command** See *Appendix 1* for more information.	
	2	0/1	0 = write unsuccessful, 1 = write successful	
RS_SEND_VERSION	1	**219**	**A reply to the RS_QUERY_VERSION command**	
	2	1…255	Major version number (**4**.12)	
	3	0…255	Minor version number (4.**12**)	
	4	0…255	Customer/product ID	

Command	Data		Description
RS_BUTTON_ID	1	**221**	**Sends ID for front panel button pressed**.
	2	1…10	Button ID, 1 = Ext, 7.1CH 2 = Cine Eq, 3 = Mode + 4 = Tape Monitor, 5 = Source – 6 = Source + , 7 = Standby 9 = Volume – , 10 = Volume +
RS_VOLUME	1	**225**	**Main zone volume**
	2	10…115	Volume: 10 = -90dB, 100 = 0dB, 115 = +15dB
RS_MUTE	1	**226**	**Status of the main mute**
	2	0/1	Main mute: 0 = unmuted, 1 = muted
RS_AUDIO_SOURCE	1	**227**	**Currently selected audio source**
	2	1…8, 64	1 = Aux 2
			2 = Aux 1
			3 = Sat
			4 = VCR
			5 = TV
			6 = DVD
			7 = CD
			8 = Tuner
			64 = external 7.1 input
RS_VIDEO_SOURCE	1	**228**	**The current Composite/SVideo source.** Even when an audio source (7 or 8) is selected, the video input of the last selected video source remains active, and is indicated by this command.
	2	1…6	Last selected video source (see above)
RS_OPER_MODE	1	**229**	**Operating mode**
	2	0/1	0 = standby, 1 = on
RS_DIMMER	1	**234**	**VFD brightness**
	2	0/1	0 = bright, 1 = dimmed
RS_TAPEMONITOR	1	**235**	**TapeMonitor status**
	2	0/1	0 = TapeMonitor off, 1 = TapeMonitor on
RS_STEREO_MODE	1	**236**	**Current post-processing mode**
	2	0…17	0 = Direct (Stereo with 2 channel audio material)
			1 = Dolby Pro Logic
			2 = Natural
			3, 4, 5 *Not used*
			6 = Party
			7 = Mono downmix
			8 = *Not used*
			9 = Surround 6.1
			10, 11 = *Not used*
			12 = Stereo downmix
			13 = Pro Logic 2 Movie
			14 = Pro Logic 2 Music
			15 = Dolby Digital EX
			16 = Neo:6 Cinema
			17 = DTS-ES Matrix
			18, 19 = *Not used*
			20 = Neo:6 Music

Command	Data		Description
RS_SIGNAL_TYPE	1	**237**	**Current audio signal**
	2	0…10	0 = <reserved>
			1 = Digital zero signal (currently not used)
			2 = Digital PCM
			3 = Dolby Digital
			4 = DTS
			5 = MPEG
			6 = Noise (generated by the DSP)
			7 = Analog
			8 = Digital Error (unrecognized or corrupted digital signal)
			9 = DTS-ES non-discrete
			10 = DTS-ES Discrete
RS_AUDIO_INPUT_TYPE	1	**238**	**Audio input type of the current source**
	2	0…5	0 = Analog
			1 = Coaxial
			2 = Optical
RS_COMPRESSION	1	**239**	**Late Night compression(COMP) status**
	2	0/1	0 = compression off, 1 = compression on
RS_CINEEQ	1	**240**	**Cine EQ status**
	2	0/1	0 = Cine EQ off, 1 = Cine EQ on
RS_VIDEO_INPUT_TYPE	1	**241**	**Type of the input video signal**
	2	0…2	0 = unknown / no input signal
			1 = Composite
			2 = SVideo
RS_TREBLE	1	**242**	**Treble setting**
	2	0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_BASS	1	**243**	**Bass setting**
	2	0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_CENTER	1	**244**	**Centre trim level**
	2	0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_SURROUND	1	**245**	**Surround trim level**
	2	0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_SUBWOOFER	1	**246**	**Subwoofer trim level**
	2	0…24	0 = -12dB, 12 = 0dB, 24 = +12dB
RS_TRIGGER1	1	**247**	**Trigger 1 status**
	2	0/1	0 = trigger inactive, 1 = trigger active
RS_TRIGGER2	1	**248**	**Trigger 2 status**
	2	0/1	0 = trigger inactive, 1 = trigger active
RS_TV_SYSTEM	1	**249**	**TV system of the video input signal**
	2	0…2	0 = unknown, 1 = PAL, 2 = NTSC
RS_EOT		**255**	Sent out as a last byte of each transmission from the serial port

Appendix 1 - RS_STORE_EEPROM and RS_READ_EEPROM

This appendix gives further information about RS_STORE_EEPROM and RS_READ_EEPROM commands.

RS_STORE_EEPROM is used to store one byte to the EEPROM, where all user settings are stored. This commands allows setup values to be configured during installation. The command is not intended to change any values during normal operation, since the values are only stored to the EEPROM and are not automatically updated to the system. Some changes may not become effective until re-boot.

The address is calculated by the following formula:
*address = MSB address * 256 + LSB address*
The table below has both MSB and LSB addresses already calculated

EXAMPLE
The analog sensitivity of the Source2 is set to –3dB:
- first send the RS_ENABLE_CONTROL <224><82><83><33>
- send the RS_STORE_EEPROM command <230>
- send the address <3><81>
- send the sensitivity <82>

Data description	Data range		Address		
			MSB	LSB	MSB*256+LSB
LDelay	80-115	80 = 0ms, 115 = 35ms	0	11	11
CDelay	80-115	80 = 0ms, 115 = 35ms	0	12	12
RDelay	80-115	80 = 0ms, 115 = 35ms	0	13	13
RsDelay	80-115	80 = 0ms, 115 = 35ms	0	14	14
LsDelay	80-115	80 = 0ms, 115 = 35ms	0	15	15
SubDelay	80-115	80 = 0ms, 115 = 35ms	0	16	16
LLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	17	17
CLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	18	18
RLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	19	19
RsLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	20	20
LsLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	21	21
SubLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	22	22
LfeLevel	70-80	70=-10dB, 80=0dB	0	23	23
MainSpeakers	80/81	80=small, 81 = large	0	24	24
CenterSpeaker	80-82	80=no, 81=small, 82=large	0	25	25
SurroundSpeakers	80-82	80=no, 81=small, 82=large	0	26	26
Subwoofer	80/81	80=no, 81=yes	0	27	27
Volume	90-195	90=-90dB, 180=0dB,195=+15dB	0	29	29
Input1Mode	80…	0 = Mono 1 = Stereo 2 = Direct 3 = Dolby Pro Logic 4 = Music1 (Natural) 11 = Dolby Pro Logic II Movie 12 = Dolby Pro Logic II Music 13 = Dolby Digital EX 14 = Neo:6 15 = DTS-ES Matrix 19 = Music6 (Party) 30 = DSP Bypass	0	30	30
Input *x* Mode, x = 2 - 8	See above		0	31 - 37	31 - 37
DistanceUnit	80/81	80=meters 81=feet	0	47	47

Data description	Data range		Address		
			MSB	LSB	MSB*256+LSB
SubFilter	80/81	80=SubFilter On 81=SubFilter Off	0	49	49
PLII Panorama	80/81	80=Panorama Off 81=Panorama On	0	50	50
PLII Width	80-87	80=Min Width, 87=Max Width	0	51	51
PLII Dimension	80-86	80=Min Dimension, 86=Max Dim.	0	52	52
Neo:6 Centre image	80-85	80=Min Width, 85=Max Width	0	57	57
SkipWelcome	0/1	0 = Welcome message displayed 1 = Welcome message not displayed	0	62	62
OsdMode	81/82	81 = Superimpose 82=Blueback	0	63	63
OsdTemporary	80-82	80=No temporary display 81=Simple 82=Full	0	64	64
OsdRouting	80-83	80=No OSD 81=OSD to composite 82=OSD to SVIDEO 83=OSD to both	0	65	65
OsdInputSelect	80-83	80=OSD Input Off 81=Svideo to OSD 82=Composite to OSD 83=Auto mode	0	66	66
TVSystem	1/2	Blueback TV mode 1=PAL 2=NTSC	0	77	77
OsdStyle	0-29	0=Factory default style 1-29=Preset Style	0	78	78
OsdBackgrColor	0-7	Background colour for Factory default style 0 = black 1 = blue 2 = green 3 = cyan 4 = red 5 = magenta 6 = yellow 7 = white	0	79	79
OsdCharColor	0-7	Character colour, *see above for colour codes*	0	80	80
OsdErrorColor	0-7	Error line colour, *see above for colour codes*	0	81	81
BackSpeakers	80-84	80=no back speakers 81=one small back speaker 82=one large back speaker 83=two small back speakers 84=two large back speakers	0	101	101
RbLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	102	102
LbLevel	50-110	50=-15.0dB, 80=0.0dB, 81=0.5dB, 110=15.0dB	0	103	103
RbDelay	80-115	80 = 0ms, 115 = 35ms	0	104	104
LbDelay	80-115	80 = 0ms, 115 = 35ms	0	105	105
SubFreq	120/130/ 140/150/ 160/170/ 180/190/ 200/210/ 220	120=40Hz, 130=50Hz 140=60Hz, 150=70Hz 160=80Hz, 170=90Hz 180=100Hz, 190=110Hz 200=120Hz, 210=130Hz 220=140Hz	0	106	106

Data description	Data range		Address		
			MSB	LSB	MSB*256+LSB
EnhancedBass	80/81	80=Enhanced bass On 81= Enhanced bass Off	0	107	107
Trigger1Source	80-106	80 = Trigger Off (81-88, Source[1-8]) 81=Source1 … 88=Source 8 98 = External 7.1 100 = Power On 101 = Dimmer 102 = Composite in 103 = SVideo in 104 = Composite/SVideo in 105 = Video source selected (1-6) 106 = Audio source selected (7 or 8)	0	108	108
Trigger1Polarity	80/81	80=negative 8 1=positive	0	109	109
Trigger1Delay	80-94	80 = 100ms 81 = 1s 82 = 2s 83 = 3s 84 = 5s 85 = 7s 86 = 10s 87 = 15s 88 = 20s 89 = 30s 90 = 45s 91 = 1min 92 = 1min30s 93 = 2min 94 = 3min	0	110	110
Trigger1Duration	80-96	80 = Infinity 81 = 10ms 82 = 100ms 83 = 1s 84 = 2s 85 = 3s 86 = 5s 87 = 7s 88 = 10s 89 = 15s 90 = 20s 91 = 30s 92 = 45s 93 = 1min 94 = 1min30s 95 = 2min 96 = 3min	0	111	111
Trigger2Source	80-106	*see Trigger1Source above*	0	112	112
Trigger2Polarity	80/81	80=negative 81=positive	0	113	113
Trigger2Delay	80-94	*see Trigger1Delay above*	0	114	114
Trigger2Duration	80-96	*see Trigger1Duration above*	0	115	115
Bass	68-92	68=-12dB, 80=0dB, 92=+12dB	0	118	118
Treble	68-92	68=-12dB, 80=0dB, 92=+12dB	0	119	119

Data description	Data range		Address		
			MSB	LSB	MSB*256+LSB
WelcomeMessage	ASCII code	All bytes are ASCII codes. 400-419 has the 20 characters of the first row and 420-439 of the second row	1	144-183	400-439
ShutdownMessage	ASCII code	All bytes are ASCII codes. 440-459 has the 20 characters of the first row and 460-479 of the second row	1	184-223	440-479
ChannelNames	ASCII code	All bytes are ASCII codes. The label of the Source1 is stored in 702-708 (seven characters), Source2 in 709-715, etc	2 3	190-255 0-45	702-767 768-813
SourceAnalogSensitivity	80-95	80=-5dB,85=0dB,95=+10dB (848 has the sensitivity for the Source1, 849 for Source2, etc.)	3	80-95	848-863
DigitalAssoc	80-86	80 = Digital input Off 81-86 = Digital input [1-6] (864 has the digital input for the Source1, 865 for the Source2, etc.)	3	96-111	864-879
Preset1Center	68-92	68=-12dB, 80=0dB, 92=+12dB	4	0	1024
Preset1Surround	*See above*		4	1	1025
Preset1Subfoower	*See above*		4	2	1026
Preset1Bass	*See above*		4	3	1027
Preset1Treble	*See above*		4	4	1028
Preset1Data	-	*reserved*	4	5-9	1029-1033
Preset2	*See Preset1 structure above*		4	10-19	1034-1043
Preset3	*See Preset1 structure above*		4	20-29	1044-1053
Preset4	*See Preset1 structure above*		4	30-39	1054-1063
Preset5	*See Preset1 structure above*		4	40-49	1064-1073
PresetAssoc	80-85	80=No preset, 81=Preset1, 82=Preset2, etc. (1074 has the Preset for the Source1, 1075 for the Source 2, etc.)	4	50-65	1074-1089

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