DX810 Serial Communication Specification for Sound Contractors

Version 3.0

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General

This document outlines the message formats for communicating with the DX8 when fitted with the DX10e expansion kit via either the front panel or rear panel RS232 port. The DX10e uses a standard RS232, 115200 baud binary interface for all messages.

Message Format

All messages consist of the following four fields:

Sync	Device ID	Message ID	Data

There are no reserved bytes in the protocol; a data byte can be any value so that no packing is necessary.

Sync

The purpose of the sync byte is to provide a means to help the DX8 gain synchronization with an incoming message stream should it be 'hot plugged', or if it receives bad data (as may occur when the baud rate setting is incorrect). The DX8 uses the value 0xA5 for this purpose. When the DX8 gets out of sync, it waits until it receives an 0xA5, and then begins parsing the message. If the data that follows is the sync byte and is a valid message, it will be processed. Otherwise, the DX8 will continue parsing the stream until it receives another 0xA5 and then repeats the process. While not completely foolproof, in practice this approach offers effective sync capability while allowing for a simple protocol and stable, reliable rejection of corrupted data.

Device ID

This parameter is not implemented in version 1.0 of the DX10e application. Set this value to 00.

Message ID

This specifies what type of a message is being sent. For instance, a "parameter edit" message has ID 0x78, and a "preset recall" message has ID 0x77. See Appendix A for a list of all the supported messages.

Data

The usage of this field is up to each individual message.

Appendix A - Supported Messages

The following messages are supported by the DX10e. In the following table, "Dev ID" specifies the device ID to which the message is being addressed. For instance, to send a 'Ping' message to device ID 01, you need the following 4 bytes:

Ping Message = A5 01 80 00

Message	Format (hex)	Description
Ping	A5 <Dev ID> 80 00	Ping the device to get its Software Information and see if it is alive! The DX8 responds with a Ping Response message as shown below
Ping Response	A5 <Dev ID> 7F <Device Type> <SW Version>	This message is sent by the DX8 in response to Ping. The returned values are <Device Type> - 16 bit device number. For the DX8, the Device Type is 0x0101. <SW Version> - 16 bit version of the software
Parameter Edit	A5 <Dev ID> 78<Effect ID> < Channel> <Index> <Value>	Appendix B specifies Effect ID (input fader, input tone control, 31 band EQ, master fader level, etc.), channel (1-8 for inputs, 1-10 for the outputs) and indices (the parameter index within effect) for all parameters.
Preset Recall	A5 <Dev ID> 77 00 00 00 <Preset #>	Recalls the specified preset (1-32). Note the three zeros between the 77 and the preset number. These exist for future expansion. Presets can be set up using the Mackie Industrial DX10e GUI.
Temporary Preset Recall or Unload	A5 <Dev ID> 76 00 00 <Load/Unload> <Preset>	Temporarily recalls or unloads the specified preset (1-32) based on the next byte. If 1, it is loaded, if 2 it is unloaded. The two zeros between the 76 and the load/unload byte exist for future expansion.
Update Mode Edit	A5 <Dev ID> 6D 00 00 <Meter Num> <mode>	This message is used to set the update mode for both the meters and parameter edits. The update mode can be either polled (<mode> = 1) or auto (<mode> = 2). In auto mode, the DX10e spontaneously generates the responses. The generated messages will be sent out the same COM port as this message is received on, but only 1 COM port can actively be sending parameter and meter information at any 1 time. <Meter Num> determines what is affected by this command. If <Meter Num> = 0, this affects whether or not parameter edits are echoed. If <Meter Num> = 1..Num Meters, only updates for the specified meter will be affected If <Meter Num> = 255, All meters will be affected by mode. However, this will not affect whether parameter edits are echoed. Note that neither meter info nor parameter edits will be sent if the PC heartbeat is not detected. When set to auto, will send all meter and parameter update messages until the mode is set back to "polled". Note: power cycling the DX8 will cause the mode to be set to "polled".
PC connected heartbeat	A5 <Dev ID> 65 00 00 00 00	Sent by the PC to the DX8 to indicate it is connected. If this message has not been received in the preceding 15 seconds, the DX8 assumes that the PC is no longer connected. The DX8 will then stop sending meter and parameter edit information, if it is in auto update mode.
Meter Information Response	A5 <Dev ID> 6E 00 <Meter Num> <Meter Val Hi> <Meter Val Lo>	Sent from the DX8 to give meter information. This is either in response to a meter data request, or due to the DX8 being in auto meter mode. "Meter Val Hi" is the signed 8 bit level in dB, and "Meter Val Lo" is the fractional portion of a dB, so that together they form a signed 8.8 number. See Appendix C for further information.
Meter Data Request	6F 6E 00 00 <Meter Num>	Polls the DX8 to get the value of the specified meter (see update mode edit & Appendix C for further info).

Message Examples

These examples assume a device ID of 00, which is the global device ID. The following examples use the information from Appendix B.

To do this…	Send this…
Adjust fader 7 on the output A bus to 0 dB	A5 00 78 04 01 07 C1
Adjust master fader for output B to +10 dB	A5 00 78 05 02 01 FF
Set crosspoint gain for input 3 to output E to 0dB	A5 00 78 04 05 03 C1
Select base preset 4	A5 00 77 00 00 00 04
Load temporary preset 3	A5 00 76 00 00 01 03
Unload temporary preset 3	A5 00 76 00 00 02 03
Set channel 3's low EQ level control to + 15 dB	A5 00 78 01 03 01 1E
Set channel 7's high EQ frequency to 3.16 kHz	A5 00 78 01 07 04 0F
Force group 3 on	A5 00 78 0F 03 01 01
Force group 3 off	A5 00 78 0F 03 01 02
Set group 3 to 'no force'	A5 00 78 0F 03 01 00
Mute output C (latching)	A5 00 78 05 03 02 01
Mute input 6 (momentary)	A5 00 78 08 06 04 01
Set control group 2 to 0 dB	A5 00 78 09 02 01 C1
Mute control group 2 (momentary)	A5 00 78 09 02 03 01
Set control group 2's 'mute' button as 'enable'	A5 00 78 09 02 04 01
Enable parameter echoing from the DX8	A5 00 6D 00 00 00 02
Put meter 1 (input #1) into auto mode	A5 00 6D 00 00 01 02
PC connected heartbeat	A5 00 65 00 00 00 00
Poll the DX8 for meter #6	A5 00 6F 6E 00 00 06
Activate combine Group 4	A5 00 78 06 04 01 01

Notes:
- See Appendix C for examples relating to meter information responses
- Due to the time required to smoothly adjust all levels in a group, it is *not* recommended that Group fader messages (effect ID 9) are sent to the dx10e more frequently than once every 50 msec

Appendix B - Effect IDs, Channels, Numbers and Ranges

Effect ID Summary

Effect ID	Effect Name
1	Input Tone Control
2	Output 31 or 8 Band EQ
3	Unused
4	Output Mixer/ Crosspoints
5	Master Outputs (levels, mute, etc.)
6	Room Combine control
7	Output Compressor
8	Input Channels (levels, mute, etc.)
9	Group
10	Cross-over
11	Preset Set Parm Num
12	Input Compressor
13	Input Gate
14	Delay
15	Global Parameters (

Input EQ

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Input Tone Control	Link	1	1-8	0	0-255	Link number 0 = No Link
Input Tone Control	Enable	1	1-8	1	0-1	0=Off, 1=On
Input Tone Control	Low Shelf Level	1	1-8	2	0-255 (0xFF)	0 = -15 dB, 127 (0x7F) = 0 dB, 255 (0xFF) = + 15dB
Input Tone Control	Low Shelf Freq	1	1-8	3	0-255 (0xFF)	0 = 20 Hz, 127 (0x7F) = 99.4 Hz, 255 (0xFF) = 500 Hz
Input Tone Control	High Shelf Level	1	1-8	4	0-255 (0xFF)	0 = -15 dB, 127 (0x7F) = 0 dB, 255 (0xFF) = + 15dB
Input Tone Control	High Shelf Freq	1	1-8	5	0-255 (0xFF)	0 = 500 Hz, 127 (0x7F) = 3.14kHz 255 (0xFF) = 20 kHz
Input Tone Control	Mid Band Level	1	1-8	6	0-255 (0xFF)	0 = -15 dB, 127 (0x7F) = 0 dB, 255 (0xFF) = + 15dB
Input Tone Control	Mid Band Freq	1	1-8	7	0-255 (0xFF)	
Input Tone Control	Mid Band Bandwidth	1	1-8	8	0-255 (0xFF)	

Output Graphic/Parametric EQ

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Output EQ	Link	2	1-10	0	0-255	Link number 0 = No Link
Output EQ	Enable	2	1-10	1	0-1	0 = Bypassed 1 = Enabled
Output EQ	Type	2	1-10	2	0-1	0 = 31 Band Graphic 1 = 8 Band Parametric
Output EQ	Band 1 Level	2	1-10	3	0-255	0 = -15 dB, 127 (0x7F) = 0 dB, 255 (0xFF) = + 15dB
Output EQ	Band 1 Freq (20.0Hz)	2	1-10	4	0-255	0 = 20 Hz 127 (0x7F) = 623 Hz 255 (0xFF) = 20 kHz NOTE: log spacing
Output EQ	Band 1 Bandwidth	2	1-10	5	0-255	0 = 0.1 octave 255 (0xFF) = 6.0 octaves (See following table for taper)
Output EQ	Band 2 Level	2	1-10	6	0-255	
Output EQ	Band 2 Freq (25.0Hz)	2	1-10	7	0-255	
Output EQ	Band 2 Bandwidth	2	1-10	8	0-255	
Output EQ	Band 3 Level	2	1-10	9	0-255	
Output EQ	Band 3 Freq (31.25Hz)	2	1-10	10	0-255	
Output EQ	Band 3 Bandwidth	2	1-10	11	0-255	
Output EQ	Band 4 Level	2	1-10	12	0-255	
Output EQ	Band 4 Freq (40.0Hz)	2	1-10	13	0-255	
Output EQ	Band 4 Bandwidth	2	1-10	14	0-255	
Output EQ	Band 5 Level	2	1-10	15	0-255	
Output EQ	Band 5 Freq (50.0Hz)	2	1-10	16	0-255	
Output EQ	Band 5 Bandwidth	2	1-10	17	0-255	
Output EQ	Band 6 Level	2	1-10	18	0-255	
Output EQ	Band 6 Freq (63.0Hz)	2	1-10	19	0-255	
Output EQ	Band 6 Bandwidth	2	1-10	20	0-255	
Output EQ	Band 7 Level	2	1-10	21	0-255	
Output EQ	Band 7 Freq (80.0Hz)	2	1-10	22	0-255	
Output EQ	Band 7 Bandwidth	2	1-10	23	0-255	
Output EQ	Band 8 Level	2	1-10	24	0-255	
Output EQ	Band 8 Freq (100.0Hz)	2	1-10	25	0-255	
Output EQ	Band 8 Bandwidth	2	1-10	26	0-255	
Output EQ	125Hz	2	1-10	27	0-255	
Output EQ	160Hz	2	1-10	28	0-255	
Output EQ	200Hz	2	1-10	29	0-255	
Output EQ	250Hz	2	1-10	30	0-255	
Output EQ	315Hz	2	1-10	31	0-255	
Output EQ	400Hz	2	1-10	32	0-255	
Output EQ	500Hz	2	1-10	33	0-255	
Output EQ	630Hz	2	1-10	34	0-255	
Output EQ	800Hz	2	1-10	35	0-255	
Output EQ	1.00kHz	2	1-10	36	0-255	
Output EQ	1.25kHz	2	1-10	37	0-255	
Output EQ	1.60kHz	2	1-10	38	0-255	
Output EQ	2.00kHz	2	1-10	39	0-255	
Output EQ	2.50kHz	2	1-10	40	0-255	
Output EQ	3.15kHz	2	1-10	41	0-255	
Output EQ	4.00kHz	2	1-10	42	0-255	
Output EQ	5.00kHz	2	1-10	43	0-255	
Output EQ	6.30kHz	2	1-10	44	0-255	
Output EQ	8.00kHz	2	1-10	45	0-255	
Output EQ	10.0kHz	2	1-10	46	0-255	
Output EQ	12.5kHz	2	1-10	47	0-255	
Output EQ	16.0kHz	2	1-10	48	0-255	
Output EQ	20.0kHz	2	1-10	49	0-255	

Taper for parametric EQ bandwidth, in octaves:

index	BW octaves	index	BW octaves	index	BW octaves	index	BW octaves
0	0.1	64	0.33	128	1.05	192	2.97
1	0.1	65	0.33	129	1.07	193	3.02
2	0.1	66	0.34	130	1.09	194	3.06
3	0.11	67	0.35	131	1.11	195	3.1
4	0.11	68	0.35	132	1.13	196	3.14
5	0.11	69	0.36	133	1.15	197	3.18
6	0.11	70	0.37	134	1.17	198	3.23
7	0.11	71	0.37	135	1.19	199	3.27
8	0.12	72	0.38	136	1.21	200	3.31
9	0.12	73	0.39	137	1.23	201	3.36
10	0.12	74	0.39	138	1.26	202	3.4
11	0.12	75	0.4	139	1.28	203	3.45
12	0.12	76	0.41	140	1.3	204	3.49
13	0.13	77	0.42	141	1.32	205	3.54
14	0.13	78	0.42	142	1.35	206	3.58
15	0.13	79	0.43	143	1.37	207	3.63
16	0.13	80	0.44	144	1.39	208	3.67
17	0.14	81	0.45	145	1.42	209	3.72
18	0.14	82	0.46	146	1.44	210	3.77
19	0.14	83	0.46	147	1.47	211	3.81
20	0.14	84	0.47	148	1.49	212	3.86
21	0.15	85	0.48	149	1.52	213	3.9
22	0.15	86	0.49	150	1.54	214	3.95
23	0.15	87	0.5	151	1.57	215	4
24	0.16	88	0.51	152	1.6	216	4.05
25	0.16	89	0.52	153	1.62	217	4.09
26	0.16	90	0.53	154	1.65	218	4.14
27	0.16	91	0.54	155	1.68	219	4.19
28	0.17	92	0.55	156	1.71	220	4.24
29	0.17	93	0.56	157	1.74	221	4.29
30	0.17	94	0.57	158	1.77	222	4.33
31	0.18	95	0.58	159	1.79	223	4.38
32	0.18	96	0.59	160	1.82	224	4.43
33	0.18	97	0.6	161	1.85	225	4.48
34	0.19	98	0.61	162	1.89	226	4.53
35	0.19	99	0.62	163	1.92	227	4.58
36	0.19	100	0.63	164	1.95	228	4.63
37	0.2	101	0.65	165	1.98	229	4.68
38	0.2	102	0.66	166	2.01	230	4.73
39	0.21	103	0.67	167	2.04	231	4.78
40	0.21	104	0.68	168	2.08	232	4.83
41	0.21	105	0.7	169	2.11	233	4.88
42	0.22	106	0.71	170	2.14	234	4.93
43	0.22	107	0.72	171	2.18	235	4.98
44	0.23	108	0.73	172	2.21	236	5.03
45	0.23	109	0.75	173	2.25	237	5.08
46	0.23	110	0.76	174	2.28	238	5.13
47	0.24	111	0.78	175	2.32	239	5.18
48	0.24	112	0.79	176	2.35	240	5.23
49	0.25	113	0.8	177	2.39	241	5.28
50	0.25	114	0.82	178	2.43	242	5.33
51	0.26	115	0.83	179	2.46	243	5.38
52	0.26	116	0.85	180	2.5	244	5.43
53	0.27	117	0.86	181	2.54	245	5.48
54	0.27	118	0.88	182	2.58	246	5.54
55	0.28	119	0.9	183	2.61	247	5.59
56	0.28	120	0.91	184	2.65	248	5.64
57	0.29	121	0.93	185	2.69	249	5.69
58	0.29	122	0.95	186	2.73	250	5.74
59	0.3	123	0.96	187	2.77	251	5.79
60	0.3	124	0.98	188	2.81	252	5.84
61	0.31	125	1	189	2.85	253	5.9
62	0.32	126	1.02	190	2.89	254	5.95
63	0.32	127	1.03	191	2.93	255	6

Level Control

Input, Output, and cross-point levels are controlled using the following 'effects'.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Output Mixer	Link	4	Output 1 to 10	0	0-255	Link number 0 = No Link
Output Mixer	Crosspoint Gain	4	Output 1 to 10	1 to 8 (Inp 1 to 8)	0-255 (0xFF)	255 (0xFF) = + 10 dB 193 (0xC1) = 0 dB, 0 = off
Output Mixer	Crosspoint Latching Mute	4	Output 1 to 10	9 to 16 (Inp 1 to 8)	0-1	0=Off, 1=Muted
Output Mixer	User-assigned Group Num	4	Output 1 to 10	17 to 24 (Inp 1 to 8)	0-32	0=No Group 1-32 = Group number
Output Mixer	Active Group Number (Note: This parameter is only used internally)	4	Output 1 to 10	25-32 (Inp 1 to 8)	0-33	0=No Group 1-32 = Group number 33 = Muted-group

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Master Outputs	Link	5	Output 1-10	0	0-255	Link number 0 = No Link
Master Outputs	Gain	5	Output 1-10	1	0-255 (0xFF)	255 (0xFF) = + 10 dB 193 (0xC1) = 0 dB, 0 = off
Master Outputs	Latching Mute	5	Output 1-10	2	0-1	0=Off, 1=Muted
Master Outputs	User-assigned Group Num	5	Output 1 to 10	3	0-32	0=No Group 1-32 = Group number
Master Outputs	Momentary Mute	5	Output 1 to 10	4	0-1	0=Off, 1=Muted
Master Outputs	Mute Reverse	5	Output 1 to 10	5	0-1	0=Normal, 1=Reverse
Master Outputs	Active Group Number (Note: This parameter is only used internally)	5	Output 1 to 10	6	0-33	0=No Group 1-32 = Group number 33 = Muted-group

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Input Channels	Link	8	Input 1-8	0	0-255	Link number 0 = No Link
Input Channels	Gain	8	Input 1-8	1	0-255 (0xFF)	255 (0xFF) = + 10 dB 193 (0xC1) = 0 dB, 0 = off
Input Channels	Latching Mute	8	Input 1-8	2	0-1	0=Off, 1=Mute
Input Channels	Group Number	8	Input 1-8	3	0-32	0=No Group 1-32 = Group number
Input Channels	Momentary Mute	8	Input 1-8	4	0-1	0=Off, 1=Mute
Input Channels	Mute Reverse	8	Input 1-8	5	0-1	0=Normal, 1=Reverse

Combine

The combine effect controls the room combine function. This effect is NOT stored in presets.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Combine	Link	6	1-16	0	0-255	Link number 0 = No Link
Combine	Enable	6	1-16	1	0-1	0=off, 1=on
Combine	Members1	6	1-16	2	0-255	Bit field of members. Bit0: Output A Bit1: Output B, etc.. 0=Not member 1=Member
Combine	Members2	6	1-16	3	0-255	Bit field of members. Bit0: Output I Bit1: Output J 0=Not member 1=Member

Compressor

Both inputs and outputs have compressors.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Output Compressor	Link	7	Output 1-10	0	0-255	Link number 0 = No Link
Output Compressor	Enable	7	Output 1-10	1	0-1	0 = off, 1 = on
Output Compressor	Threshold	7	Output 1-10	2	0-236	0 = -60 dB, 236 = -1.0 dB
Output Compressor	Ratio	7	Output 1-10	3	0-87	0 = 1.0:1 87 = 20:1
Output Compressor	Attack Time	7	Output 1-10	4	0-173	0 = .1 mS, 173 = 2500 mS
Output Compressor	Release Time	7	Output 1-10	5	0-118	0 = 10 mS, 118 = 2500 mS
Output Compressor	Gain	7	Output 1-10	6	0-200	0 = 0 dB 200 = 20 dB

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Input Compressor	Link	12	Input 1-8	0	0-255	Link number 0 = No Link
Input Compressor	Enable	12	Input 1-8	1	0-1	0 = off, 1 = on
Input Compressor	Threshold	12	Input 1-8	2	0-236	0 = -60 dB, 236 = -1.0 dB
Input Compressor	Ratio	12	Input 1-8	3	0-87	0 = 1.0:1 87 = 20:1
Input Compressor	Attack Time	12	Input 1-8	4	0-173	0 = .1 mS, 173 = 2500 mS
Input Compressor	Release Time	12	Input 1-8	5	0-118	0 = 10 mS, 118 = 2500 mS
Input Compressor	Gain	12	Input 1-8	6	0-200	0 = 0 dB 200 = 20 dB

Groups

Any input, output or cross-point may be a member of a group.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Group	Link	9	1-32	0	0-255	Link number 0 = No Link
Group	Level	9	1-32	1	0-255	255 (0xFF) = +10 dB 193 (0xC1) = 0 dB, 0 = off
Group	Latched Mute	9	1-32	2	0-1	0=Off, 1=On

Group	Momentary Mute	9	1-32	3	0-1	0=Off, 1=On
Group	Mute Reverse	9	1-32	4	0-1	0=Normal, 1=Reverse
Group	Exclusive mute members 1	9	1-32	5	0-255	Bit field: grps 8-1 0=Not member, 1=Member
Group	Exclusive mute members 2	9	1-32	6	0-255	Bit field: grps 16-9 0=Not member, 1=Member
Group	Exclusive mute members 3	9	1-32	7	0-255	Bit field: grps 24-17 0=Not member, 1=Member
Group	Exclusive mute members 4	9	1-32	8	0-255	Bit field: grps 32-25 0=Not member, 1=Member

Crossover

Each output has a crossover.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
X-Over	Link	10	1-10	0	0-255	Link number 0 = No Link
X-Over	Enable	10	1-10	1	0-1	0=off, 1=on
X-Over	Type	10	1-10	2	0-2	0= Lowpass 1= Bandpass 2= Highpass
X-Over	High Frequency (BP) Not used (LP/HP)	10	1-10	3	0-255	
X-Over	Slope	10	1-10	4	0-2	0= 12dB/oct 1= 18dB/oct 2= 24dB/oct
X-Over	Low Frequency (BP) Frequency (LP/HP)	10	1-10	5	0-255	
X-Over	Topology	10	1-10	6	0-2	0=Linkwitz/Riley 1=Butterworth 2=Bessel
X-Over	Output Polarity	10	1-10	7	0-1	0=Normal 1=Inverted

Gates

Each input has a gate.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Gate	Link	13	1-8	0	0-255	Link number 0 = No Link
Gate	Enable	13	1-8	1	0-1	0=off, 1=on
Gate	Threshold	13	1-8	2		
Gate	Attack Time	13	1-8	3		
Gate	Release Time	13	1-8	4		
Gate	Duck Level	13	1-8	5		

Delay

Each output has a delay.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Delay	Link	14	1-10	0	0-255	Link number 0 = No Link
Delay	Enable	14	1-10	1	0-1	0=off, 1=on
Delay	Millisecond Delay Time	14	1-10	2	0-250	Delay Time in msec Each value = 2 msec (i.e. 250 = 500 msec)
Delay	Microsecond Delay Time	14	1-10	3	0-44	Delay Time in samples Each value = 1 sample (approx 22 usec)
Delay	Xover Delay Time (Note: not affected by enable and not linked)	14	1-10	4	0-44	Delay Time in samples Each value = 1 sample (approx 22 usec)
Delay	Xover Delay Time Enable (Note: Linked, only affects xover delay time)	14	1-10	5	0-1	0=Off, 1= On

Global Parameters

These parameters are global for the unit, and do not change on a preset basis.

Effect Name	Parameter Name	Effect ID	Channel	Parameter Number	Value	Value description
Global	Disable All Modifiers	15(0x0F)	0	1	0-1	0 = enable, 1 = disable
Global	Preset Ramp Time	15 (0x0F)	0	3	0-30	0=OFF 1-30 Ramp-tm (sec)
Global	Active Base Preset	15 (0x0F)	0	4	1-16	Currently loaded base preset. See note 1
Global	Logic Input Switch Status	15 (0x0F)	0	11-22	0-1	The 'raw' status of the 12 logic inputs. See note 2
Global	Active Preset Active	15 (0x0F)	0	23	1-16	Currently active preset. See note 1
Global	Temporary Preset Status	15 (0x0F)	0	24	0-1	Set if active preset is a temporary preset. See note 1
Global	Logic Out Indicators 1-8	15 (0x0F)	0	25	Bits	Bit 0 = value for out 1 Bit 7 = value for out 8
Global	Logic Out Indicators 9-10	15 (0x0F)	0	26	Bits	Bit 0 =value for out 9 Bit 1 =value for out 10
Global	Not Used	15	1-40	0	0	Not Used but must be here for a place holder.
lobal	Force Status	15 (0x0F)	1-40 (Inp: 1-8) (grp: 9-40)	1	0-2	0=no force, 1=force on, 2= force off

Note 1: The active base preset, active preset, temporary preset status, and logic out indicators can be recalled from the, but it cannot be set using this mechanism. (Use a preset recall message (0x77) to change the base preset.) Essentially, this is a 'read only' variable.

Note 2: These values reflect the current state of the logic input switches. They are read only variables.

Appendix C - Level Meter Information

Meter information can be received in two modes - automatic or polled. In auto mode (mode=2), the information is spontaneously generated by the DX8 every (approximately) 75 msec. All levels are sent up at once, each in its own level response message. In polled mode (mode=1), you request (using a data request message) a particular meter number and you get a Meter info response message. In automatic mode, you must keep sending the "PC connected heartbeat" (message ID 0x65) message to continue receiving automatic updates.

Each meter is numbered from 1-44 as outlined below.

Meter #	Parameter
1	Input 1 VU
2	Input 2 VU
3	Input 3 VU
4	Input 4 VU
5	Input 5 VU
6	Input 6 VU
7	Input 7 VU
8	Input 8 VU
9	Output A VU
10	Output B VU
11	Output C VU
12	Output D VU
13	Output E VU
14	Output F VU
15	Output G VU
16	Output H VU
17	Output I VU
18	Output J VU
19	Output Compressor A Reduction
20	Output Compressor B Reduction
21	Output Compressor C Reduction
22	Output Compressor D Reduction
23	Output Compressor E Reduction
24	Output Compressor F Reduction
25	Output Compressor G Reduction
26	Output Compressor H Reduction
27	Output Compressor I Reduction
28	Output Compressor J Reduction
29	Input Compressor 1 Reduction
30	Input Compressor 2 Reduction
31	Input Compressor 3 Reduction
32	Input Compressor 4 Reduction
33	Input Compressor 5 Reduction
34	Input Compressor 6 Reduction
35	Input Compressor 7 Reduction
36	Input Compressor 8 Reduction
37	Input Gate 1 Level
38	Input Gate 2 Level
39	Input Gate 3 Level
40	Input Gate 4 Level
41	Input Gate 5 Level
42	Input Gate 6 Level
43	Input Gate 7 Level
44	Input Gate 8 Level

In polled mode, the "Meter #" parameter of the meter request message corresponds the level of the requested parameter. In automatic mode, the Meter # parameter of the update mode message corresponds to which level is (automatically) sent from the DX8. For instance, setting "Meter # = 9" gets Output A.

Level information within the Meter Information response message is in dB. A floating-point number can be constructed from the two parts; "Level Hi" is the integer portion of the dB reading, and "Level Lo" is the fractional part. Note that "Level Hi" is a signed 8-bit integer. Here are a couple of examples; the first 5 bytes are all the same as they specify which meter & device they are coming from:

Message Received	db Level
A5 00 6E 00 01 **01 00**	1.00
A5 00 6E 00 01 **01 80**	1.50
A5 00 6E 00 01 **FF 00**	-1.00
A5 00 6E 00 01 **FF 80**	-0.50
A5 00 6E 00 01 **FE BB**	-1.27
A5 00 6E 00 01 **A0 00**	-96.00