

ASHLY 24.24M: RS-232 control messages

Notes:

- 1) The symbol "\$" is used to identify hexadecimal numbers in this document. Data may be sent as Hexadecimal or Decimal values. For example: you can transmit \$40 or decimal value 64, and the serial bits that are sent out the COM Port are the same. If your programming environment only supports Hex or ASCII data types, then you must use Hex. You can use MS Windows Calculator set to Scientific (in the View Menu), to convert any decimal values in this document to Hexadecimal.
- 2) Some 24.24M features may not be available in old Firmware revisions. Download current Firmware at: www.ashly.com
- 3) Units are identified by their Device Id, displayed on the front panel, when the preset number LED is off.
- 4) On power up the unit's baud rate defaults to 38,400bps. When two to four bytes @ 9600bps are received the unit automatically changes its baud rate to 9600bps, and transmits a preamble of ten \$F9 bytes at the new 9600bps rate.
- 5) Message types 1,3,5-26,28,29,33,34,36,37,39,40,66-68 are always passed through the 24.24M, to the PC or control device.
- 6) Message types 0,2,4,27,32,35,38 invoke a response message, from the selected 24.24M. However, if the Device Id is not assigned to any unit then the original request message is echoed back to the PC/Controller.
- 7) Message type 64 'Preset Dump Request' causes the selected 24.24M to transmit preset settings into the next 24.24M in line, overwriting that unit's settings. If the PC is the receiving device then the user is prompted to select a file name to save the data to.
- 8) Message types 66-68 are transmitted from the selected 24.24M, to update the PC when a WR3 or Contact Closure event occurs.

Message Types:

0 = Data Request (2 sub-types: configuration, channel data)	23 = Mute/Unmute All Outputs
1 = Data Response (3 sub-types: config, input data, output data)	24 = Front Panel Switch Configuration
2 = Meter Request	25 = Mixer Fader Mute/Unmute Message
3 = Meter Response	26 = Gain Increment/Decrement Message
4 = Preset Names Request	27 = Front Preset Scroll Button Limit Request
5 = Preset Names Response	28 = Front Preset Scroll Button Limit Response
6 = Preset Save	29 = Front Preset Scroll Button Limit Download
7 = Preset Recall	-
8 = Channel Data Download (2 types: input data, output data)	32 = WR3 Mapping Request
9 = Preset / Channel Name Message	33 = WR3 Mapping Response
10 = Polarity Message	34 = WR3 Mapping Download
11 = Preamp Message	35 = Remote Level Control Assignments Request
12 = Gain Message	36 = Remote Level Control Assignments Response
13 = Delay Message	37 = Remote Level Control Assignments Download
14 = EQ Filter Message	38 = RD-8C, RW-8C Fader Assignments Request
15 = Gate Message	39 = RD-8C, RW-8CFader Assignments Response
16 = Auto-Leveler Message	40 = RD-8C, RW-8C Fader Assignments Download
17 = Dynamic Ducker Message	-
18 = Mixer Message	64 = Preset Dump Request
19 = HPF/LPF Message	xx = Preset Dump Response
20 = Compressor-Limiter Message	66 = Local Preset Recall Update
21 = Mute Message	67 = Local Gain Change Update
22 = EQ Status Message	68 = Local Mute Change Update

0 - Data Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 above</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	00	Message type 0 = Data Request
8	0x	Data request type: 0 = configuration, 1 = input, 2 = output,
9	yy	Channel number: 0-19 = input/output 1-20; (or any value 0-\$7F during a configuration request)
10	\$F7	Stop byte

1-0 - Data Response: Configuration

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	01	Message type 1 = Data Response
8	00	Data response type 0 = Configuration
9-28	<i>nn</i>	Preset name: 20 ASCII characters in the range \$20-\$7A, where Byte# 9 is the first name character
29	<i>x-x-5-4-3-2-1-0</i>	(<i>Bit7,6 = 0</i>); Bit5 EXP1 status: 1 = present, 0 = none; Bit4 EXP1 type: 1 = input, 0 = output; Bit3 EXP2 status; Bit2 EXP2 type; Bit1 EXP3 status; Bit0 EXP3 type;
30	<i>x-x-5-4-x-x-1-0</i>	(<i>Bit7,6 = 0</i>); Bit5 EXP4 status; Bit4 EXP4 type; (<i>Bit3,2 = 0</i>); Bit1 front switch status: 1 = locked, 0 = enabled; Bit0 front switch type: 1 = preset, 0 = device id
31	<i>pn</i>	Preset number, where 0-34 = presets 1-35
32	<i>vv</i>	DSP status (xx654321): 1 = valid, 0 = invalid or not installed
33	\$F7	Stop byte

1-1 - Data Response: Input

(Response to an input Data Request Message. Refer to Excel file: 24.24M_Input_Message.xls)

1-2 - Data Response: Output

(Response to an output Data Request Message. Refer to Excel file: 24.24M_Output_Message.xls)

2 - Meter Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	02	Message type 2 = Meter Request
8	\$F7	Stop byte

3 - Meter Response (unit's reply to meter request)

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	03	Message type 3 = Meter Response
8	<i>xx</i>	Input 1 level
9	<i>xx</i>	Input 2 level
10	<i>xx</i>	Input 3 level
11	<i>xx</i>	Input 4 level
12	<i>xx</i>	Output 1 level
13	<i>xx</i>	Output 2 level
14	<i>xx</i>	Output 3 level
15	<i>xx</i>	Output 4 level

16	xx	Expansion: Input 5 level / Output 20 level
17	xx	Expansion: Input 6 level / Output 19 level
18	xx	Expansion: Input 7 level / Output 18 level
19	xx	Expansion: Input 8 level / Output 17 level
20	xx	Expansion: Input 9 level / Output 16 level
21	xx	Expansion: Input 10 level / Output 15 level
22	xx	Expansion: Input 11 level / Output 14 level
23	xx	Expansion: Input 12 level / Output 13 level
24	xx	Expansion: Input 13 level / Output 12 level
25	xx	Expansion: Input 14 level / Output 11 level
26	xx	Expansion: Input 15 level / Output 10 level
27	xx	Expansion: Input 16 level / Output 9 level
28	xx	Expansion: Input 17 level / Output 8 level
29	xx	Expansion: Input 18 level / Output 7 level
30	xx	Expansion: Input 19 level / Output 6 level
31	xx	Expansion: Input 20 level / Output 5 level
32	yy	Input 1 auto-level, gate status
33	yy	Input 2 auto-level, gate status
34	yy	Input 3 auto-level, gate status
35	yy	Input 4 auto-level, gate status
36	zz	Output 1 limiter gain reduction
37	zz	Output 2 limiter gain reduction
38	zz	Output 3 limiter gain reduction
39	zz	Output 4 limiter gain reduction
40	yy/zz	Expansion: Input 5 auto-level, gate status / Output 20 limiter gain reduction
41	yy/zz	Expansion: Input 6 auto-level, gate status / Output 19 limiter gain reduction
42	yy/zz	Expansion: Input 7 auto-level, gate status / Output 18 limiter gain reduction
43	yy/zz	Expansion: Input 8 auto-level, gate status / Output 17 limiter gain reduction
44	yy/zz	Expansion: Input 9 auto-level, gate status / Output 16 limiter gain reduction
45	yy/zz	Expansion: Input 10 auto-level, gate status / Output 15 limiter gain reduction
46	yy/zz	Expansion: Input 11 auto-level, gate status / Output 14 limiter gain reduction
47	yy/zz	Expansion: Input 12 auto-level, gate status / Output 13 limiter gain reduction
48	yy/zz	Expansion: Input 13 auto-level, gate status / Output 12 limiter gain reduction
49	yy/zz	Expansion: Input 14 auto-level, gate status / Output 11 limiter gain reduction
50	yy/zz	Expansion: Input 15 auto-level, gate status / Output 10 limiter gain reduction
51	yy/zz	Expansion: Input 16 auto-level, gate status / Output 9 limiter gain reduction
52	yy/zz	Expansion: Input 17 auto-level, gate status / Output 8 limiter gain reduction
53	yy/zz	Expansion: Input 18 auto-level, gate status / Output 7 limiter gain reduction
54	yy/zz	Expansion: Input 19 auto-level, gate status / Output 6 limiter gain reduction
55	yy/zz	Expansion: Input 20 auto-level, gate status / Output 5 limiter gain reduction
56	0-1-2-3-4-5-6-7	Inputs 1-7 ducker status bits: 0 = no ducking attenuation applied, 1 = input is being ducked
57	0-8-9-10-...14	Inputs 8-14 ducker status bits: 0 = no ducking attenuation applied, 1 = input is being ducked
58	0-15-16-...20-0	Inputs 15-20 ducker status bits: 0 = no ducking attenuation applied, 1 = input is being ducked
59	\$F7	Sys-Ex end of transmission byte

Meter Notes:

xx - input and output level bytes use the following binary format: 0CLLLLLL

Bits 5-0 represent the dBu level, where 0 = <-42 dBu, 1 to \$3F = -42 dBu to +20 dBu.

Bit 6 is the clip detector, where 0 = not clipped, 1 = clipped.

yy - input auto-level & gate status bytes use the following binary format: 0GALLLLL

Bits 4-0 represent the auto-leveler gain/attenuation in decibels, where 0 to \$1F = 0 to 31 dB.

Bit 5 is the auto-leveler gain/attenuation type: 0 = attenuation, 1 = gain.

Bit 6 is the gate status: 0 = open (signal passes), 1 = closed (signal muted).

zz - output limiter gain reduction bytes represent the actual decibel amount of attenuation applied, (0 = 0 dB, 1 = 1 dB, ...).

4 - Preset Names Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte

4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	04	Message type 4 = Preset Names Request
8	\$F7	Stop byte

5 - Preset Names Response (unit's reply to preset names request)

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	05	Message type 5 = Preset Names Response
8-707	yy	700 ASCII name characters, 20 per preset starting w/preset #1, (valid range: \$20 to \$7A)
708	\$F7	Stop byte

6 - Preset Save

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	06	Message type 6 = Preset Save
8	xx	Preset number to save to, 0-34 (Presets 1-35)
9-28	yy	20 ASCII name characters, (\$20 to \$7A)
29	\$F7	Stop byte

7 - Preset Recall

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	07	Message type 7 = Preset Recall
8	xx	Preset number to recall, 0-34 (Presets 1-35)
9	zz	Mute status: 0 = as per preset settings, 1-\$7F = force all channels to mute
10	\$F7	Stop byte

8-1 - Data Download: Input Channel

(Identical to Data Response Message, except message type byte = 08. Refer to Excel file: 24.24M_Input_Message.xls)

8-2 - Data Download: Output Channel

(Identical to Data Response Message, except message type byte = 08. Refer to Excel file: 24.24M_Output_Message.xls)

9 - Preset / Channel Name Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	09	Message type 9 = Preset / Channel Name Message
8	tt	Type: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20, 127 = Working Preset
9-28	yy	20 ASCII name characters, (valid range: \$20 to \$7A)
29	\$F7	Stop byte

10 - Polarity Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$0A	Message type 10 (\$0A) = Polarity Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Polarity: 0 = normal; 1-\$7F = inverted
10	\$F7	Stop byte

11 - Preamp Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$0B	Message type 11 (\$0B) = Preamp Message
8	xx	Channel: 0-19 = Inputs 1-20
9	yy	Preamp gain: 0 = 0 dB; 20 = 20 dB; 40 = 40 dB; 60 = 60 dB
10	zz	Phantom power: 0 = off; \$1-7F = on
11	\$F7	Stop byte

12 - Gain Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$0C	Message type 12 (\$0C) = Gain Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Gain bits 13-7; 7692 to 8312 = -50 to +12 dB in 0.1 dB steps, (8192 = 0 dB)
10	zz	Gain bits 6-0; [see Sample Gain Bytes at the end of this document]
11	\$F7	Stop byte

13 - Delay Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$0D	Message type 13 (\$0D) = Delay Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Delay bits 20-14; Delay time in seconds = (21-bit Delay Word)/(48,000)
10	yy	Delay bits 13-7; Delay word range = 0-32,760 (0-682.500 ms)
11	yy	Delay bits 6-0;
12	\$F7	Stop byte

Note: there is an additional propagation delay of 1.46 ms from any input to any output, due to the digital converters & DSP.

14 - EQ Filter Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$0E	Message type 14 (\$0E) = EQ Filter Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Filter number: 0 = filter 1, 1 = filter 2, etc...
10	ff	Frequency bit 14 (xxxxxxxE) 15-bit Frequency Word = actual frequency in Hertz
11	ff	Frequency bits 13-7 (xDCBA987) [see limits below]
12	ff	Frequency bits 6-0 (x6543210) [also, see Sample Frequency Bytes at the end of this doc]
13	qq	Q-index range: 11-107 = 1/64 to 4 oct [see Bandwidth vs. Q-index Bytes at the end of this doc]
14	gg	Filter Gain bits 13-7 (xDCBA987) [see limits below]
15	gg	Filter Gain bits 6-0 (x6543210) [also, see Sample Gain Bytes at the end of this document]
16	st	Status & Type: bit 6 (status) - 0 = bypass, 1 = active; lower nibble (type) - Value 0-5 = PEQ, LS1, LS2, HS1, HS2, Allpass
17	\$F7	Stop byte

EQ Notes:

Parametric filter frequency range: 20 Hz to 20,000 Hz

Parametric filter gain range: -30dB to +15dB in 0.1dB steps; 14-bit Gain Word = 7892 to 8342 (8192 = 0dB)

Low Shelf frequency range: 20 Hz to 2,000 Hz

High Shelf frequency range: 3,890 Hz to 20,000 Hz

Shelf filter gain range: -15dB to +15dB in 0.1dB steps; 14-bit Gain Word = 8042 to 8342 (8192 = 0dB)

15 - Gate Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$0F	Message type 15 (\$0F) = Gate Message
8	xx	Channel: 0-19 = Inputs 1-20
9	tt	Threshold: 20-120 = -80 to +20 dBu
10	ff	Floor: 0-19 = Off (-INF); 20-100 = -80 to 0 dBu

11	<i>ar</i>	Attack rate: 0-7 = 0.2, 0.5, 1, 2, 5, 10, 20, 50 ms/dB
12	<i>rr</i>	Release rate: 0-7 = 5, 10, 20, 50, 100, 200, 500, 1000 ms/dB
13	<i>ss</i>	Status: 0 = bypass; \$1-7F = active
14	\$F7	Stop byte

16 - Auto-Leveler Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$10	Message type 16 (\$10) = Auto-Leveler Message
8	<i>xx</i>	Channel: 0-19 = Inputs 1-20
9	<i>tl</i>	Target Level: 60-120 = -40 to +20 dBu
10	<i>tt</i>	Threshold: 70-100 = -30 to 0 dB below the target level
11	<i>rr</i>	Ratio: 0-6 = 1.2, 1.5, 2, 3, 4, 6, 10 to 1
12	<i>gr</i>	Gain change rates: Bits2-0 (low nibble) = increase rate, Bits6-4 (high nibble) = decrease rate value 0-7 = 5, 10, 20, 50, 100, 200, 500, 1000 ms/dB
13	<i>ht</i>	Hold time: 0-6 = 0 to 6 seconds
14	<i>ss</i>	Status: 0 = bypass; \$1-7F = active
15	\$F7	Stop byte

17 - Dynamic Ducker Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$11	Message type 17 (\$11) = Dynamic Ducker Message
8	<i>xx</i>	Channel: 0-19 = Inputs 1-20
9	<i>tt</i>	Threshold: 20-120 = -80 to +20 dBu
10	<i>dd</i>	Depth (amount of attenuation): 0-69 = Off (-INF); 70-100 = -30 to 0 dBu
11	<i>rr</i>	Release rate: 0-7 = 5, 10, 20, 50, 100, 200, 500, 1000 ms/dB
12	<i>ss</i>	Status: 0 = bypass; 1 = high priority trigger; 2 = low priority trigger; 3 = ducked program
13	\$F7	Stop byte

18 - Mixer Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	<i>n</i> = (device id - 1), where \$0-F = device 1-16 respectively
7	\$12	Message type 18 (\$12) = Mixer Message
8	<i>xx</i>	Channel: 64-83 = Outputs 1-20
9	<i>ss</i>	Source: 0-19 = Inputs 1-20
10	<i>ll</i>	Level: 0 = -INF; 1-63 = -50 to +12 dB
11	<i>ss</i>	Status: 0 = bypass; 1-7F = active
12	<i>mm</i>	Mute: 0 = not muted; \$1-7F = muted
13	\$F7	Stop byte

19 - HPF/LPF Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$13	Message type 19 (\$13) = HPF/LPF Message
8	xx	Channel: 64-83 = Outputs 1-20
9	yy	Filter: 0 = high-pass filter; 1 = low-pass filter
10	ff	Frequency bit 14 (xxxxxxxE) 15-bit Frequency Word = actual frequency in Hertz
11	ff	Frequency bits 13-7 (xDCBA987) [see Sample Frequency Bytes at the end of this document]
12	ff	Frequency bits 6-0 (x6543210)
13	tt	Type: 0-10 = ButterWorth2, Bessel2, LinkwitzRiley2, BW/LR3, B3, BW4, B4, LR4, BW8, B8, LR8
14	\$F7	Stop byte

20 - Compressor-Limiter Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$14	Message type 20 (\$14) = Compressor-Limiter Message
8	xx	Channel: 64-83 = Outputs 1-20
9	tt	Threshold: 80-120 = -20 to +20 dBu
10	rr	Ratio: 0-8 = 1.2, 1.5, 2, 3, 4, 6, 10, 20, INF to 1
11	ar	Attack rate: 0-7 = 0.2, 0.5, 1, 2, 5, 10, 20, 50ms/dB
12	rr	Release rate: 0-7 = 5, 10, 20, 50, 100, 200, 500, 1000ms/dB
13	ss	Status: 0 = bypass; \$1-7F = active
14	ll	Link: 0 = not linked; \$1-7F = linked
15	\$F7	Stop byte

21 - Channel Mute Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$15	Message type 21 (\$15) = Channel Mute Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Mute status, where 0 = not muted, \$1-7F = muted
10	\$F7	Stop byte

22 - EQ Status Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number

6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$16	Message type 22 (\$16) = EQ Status Message
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	EQ Status: 0 = bypass; \$1-7F = active
10	\$F7	Stop byte

23 - Mute/Unmute All Outputs Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$17	Message type 23 (\$17) = Mute/Unmute All Outputs Message
8	yy	Status: 0 = unmute all outputs; \$1-7F = mute all outputs
9	\$F7	Stop byte

24 - Front Panel Switch Configuration

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$18	Message type 24 (\$18) = Front Panel Switch Configuration
8	xx	Switch Status: 0 = enabled; \$1-7F = disabled (locked)
9	yy	Switch Type: 0 = device Id; \$1-7F = preset scroll
10	\$F7	Stop byte

25 - Mixer Fader Mute/Unmute Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$19	Message type 25 (\$19) = Routing Source Enable/Disable Message
8	xx	Channel: 64-83 = Outputs 1-20
9	ss	Source (mix fader): 0-19 = Inputs 1-20
10	yy	New Mixer Fader Mute Status: 0 = not muted, 1-\$7F = muted
11	\$F7	Stop byte

26 - Gain Increment/Decrement Message

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$1A	Message type 26 (\$1A) = Increment/Decrement Gain Message

8	xx	Channel: 0-19 (\$0-13) = Inputs 1-20, 64-83 (\$40-53) = Outputs 1-20
9	vv	\$00-\$03 = .5dB, 1dB, 2dB, 3dB decrement; \$10-\$13 = .5dB, 1dB, 2dB, 3dB increment
10	\$F7	Stop byte

27 - Front Preset Scroll Button Limit Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$1B	Message type 27 (\$1B) = Front Preset Scroll Button Limit Request
8	\$F7	Stop byte

28 - Front Preset Scroll Button Limit Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$1C	Message type 28 (\$1C) = Front Preset Scroll Button Limit Response
8	xx	Preset scroll limit, (preset number - 1)
9	\$F7	Stop byte

29 - Front Preset Scroll Button Limit Download

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$1D	Message type 29 (\$1D) = Front Preset Scroll Button Limit Download
8	xx	Preset scroll limit, (preset number - 1)
9	\$F7	Stop byte

32 - WR3 Mapping Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$20	Message type 32 (\$20) = WR3 Mapping Request
8	xx	WR3 ID (0-3 = WR3 1-4)
9	\$F7	Stop Byte

Note: Upon reception of this message the 24.24M will respond with a WR3 Mapping Response (33)

33 - WR3 Mapping Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$21	Message type 33 (\$21) = WR3 Mapping Response
8	xx	WR3 ID (0-3 = WR3 1-4)
9	ff	Button 1 Function
10	vv	Button 1 Value 1
11	vv	Button 1 Value 2
12	vv	Button 1 Value 3
13	ff	Button 2 Function
14	vv	Button 2 Value 1
15	vv	Button 2 Value 2
16	vv	Button 2 Value 3
17	ff	Button 3 Function
18	vv	Button 3 Value 1
19	vv	Button 3 Value 2
20	vv	Button 3 Value 3
21	ff	Button 4 Function
22	vv	Button 4 Value 1
23	vv	Button 4 Value 2
24	vv	Button 4 Value 3
25	ff	Button 5 Function
26	vv	Button 5 Value 1
27	vv	Button 5 Value 2
28	vv	Button 5 Value 3
29	ff	Button 6 Function
30	vv	Button 6 Value 1
31	vv	Button 6 Value 2
32	vv	Button 6 Value 3
33	\$F7	Stop Byte

ff – Function Assigned to the Button

0 = Off – No Function

1 = Preset Recall -

2 = Input Gain Control –

3 = Output Gain Control –

4 = Preset Scroll – Scroll through a defined range of presets

5 = Input Mute Mode

6 = Output Mute Mode

vv – Value Assigned to the Button.

Value 1

Preset Recall the values 0-34 correspond to the internal presets numbered 1 – 35.

Input Gain Control the values 0 – 19 correspond to input channels 1-20.

Output Gain the values 0-19 correspond to output channels 1-20

Preset Scroll – not used

Input/Output Mute Mode $vv = 0 - 7 - 6 - 5 - 4 - 3 - 2 - 1$ which correlates

To input / output channels 1-7 being muted when the button is pressed.

A 1 means the channel will be muted while a 0 means the channel is unaffected.

Value 2

Preset Recall this value is not used and should be set to Value 1

Input Gain Control this value 0-99 is the lower limit of the wall remote controls 0-99 range.

Output Gain Control this value 0-99 is also the lower limit of the wall remote

Preset Scroll – this value 0-34 represents the lower preset limit (1-35) to allow the user to start scrolling from.

Input/Output Mute Mode $vv = 0 - 14 - 13 - 12 - 11 - 10 - 9 - 8$ which correlates

To input / output channels 8-14 being muted when the button is pressed.

A 1 means the channel will be muted while a 0 means the channel is unaffected.

Value 3

Preset Recall this value is not used and should be set to Value 1

Input Gain Control this value 0-99 is the upper limit of the wall remote controls 0-99 range.

Output Gain Control this value 0-99 is also the upper limit of the wall remote.

Preset Scroll – this value 0-34 represents the upper preset limit (1-35) to allow the user to start scrolling from.

Input/Output Mute Mode vv = 0 – 0 – 20 –19 –18 –17- 16 –15 which correlates

To input / output channels 15-20 being muted when the button is pressed.

A 1 means the channel will be muted while a 0 means the channel is unaffected.

34 - WR3 Mapping Download

(Same as WR3 Mapping Response above, except Byte#7: message type = 34 = \$22)

35 - Remote Level Control Assignments Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$23	Message type 35 (\$23) = Remote Level Control Assignments Request
8	\$F7	Stop Byte

Note: Upon reception of this message the 24.24M will respond with a Remote Level Control Assignments Response (36)

36 - Remote Level Control Assignments Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$24	Message type 36 (\$24) = Remote Level Control Assignments Response
8	0-7-6-5-4-3-2-1	Input 1: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
9	0-0-0-0-0-0-0-8	Input 1: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
10	0-7-6-5-4-3-2-1	Input 2: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
11	0-0-0-0-0-0-0-8	Input 2: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
12	0-7-6-5-4-3-2-1	Input 3: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
13	0-0-0-0-0-0-0-8	Input 3: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
14	0-7-6-5-4-3-2-1	Input 4: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
15	0-0-0-0-0-0-0-8	Input 4: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
16	0-7-6-5-4-3-2-1	Input 5: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
17	0-0-0-0-0-0-0-8	Input 5: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
18	0-7-6-5-4-3-2-1	Input 6: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
19	0-0-0-0-0-0-0-8	Input 6: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
20	0-7-6-5-4-3-2-1	Input 7: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
21	0-0-0-0-0-0-0-8	Input 7: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
22	0-7-6-5-4-3-2-1	Input 8: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
23	0-0-0-0-0-0-0-8	Input 8: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
24	0-7-6-5-4-3-2-1	Input 9: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
25	0-0-0-0-0-0-0-8	Input 9: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
26	0-7-6-5-4-3-2-1	Input 10: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
27	0-0-0-0-0-0-0-8	Input 10: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)
28	0-7-6-5-4-3-2-1	Input 11: Bits6-0 = Remote Level Control pins 7-1 assignment, (Bit7 is always 0)
29	0-0-0-0-0-0-0-8	Input 11: Bit0 = Remote Level Control pin8 assignment, (Bits7-1 are always 0)

37 - Remote Level Control Assignments Download

(Same as Remote Level Control Assignments Response above, except Byte#7: message type = 37 = \$25)

38 - RD-8C, RW-8C Fader Assignments Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$26	Message type 38 (\$26) = RD-8C, RW-8C Fader Assignments Request
8	\$F7	Stop Byte

Note: Upon reception of this message the 24.24M will respond with a RD-8C, RW-8C Fader Assignments Response (39)

39 - RD-8C, RW-8C Fader Assignments Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$27	Message type 39 (\$27) = RD-8C, RW-8C Fader Assignments Response
8	0-7-6-5-4-3-2-1	Input 1: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
9	0-0-0-0-0-0-0-8	Input 1: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
10	0-7-6-5-4-3-2-1	Input 2: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
11	0-0-0-0-0-0-0-8	Input 2: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
12	0-7-6-5-4-3-2-1	Input 3: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
13	0-0-0-0-0-0-0-8	Input 3: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
14	0-7-6-5-4-3-2-1	Input 4: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
15	0-0-0-0-0-0-0-8	Input 4: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
16	0-7-6-5-4-3-2-1	Input 5: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
17	0-0-0-0-0-0-0-8	Input 5: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
18	0-7-6-5-4-3-2-1	Input 6: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
19	0-0-0-0-0-0-0-8	Input 6: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
20	0-7-6-5-4-3-2-1	Input 7: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
21	0-0-0-0-0-0-0-8	Input 7: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
22	0-7-6-5-4-3-2-1	Input 8: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
23	0-0-0-0-0-0-0-8	Input 8: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
24	0-7-6-5-4-3-2-1	Input 9: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
25	0-0-0-0-0-0-0-8	Input 9: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
26	0-7-6-5-4-3-2-1	Input 10: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
27	0-0-0-0-0-0-0-8	Input 10: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
28	0-7-6-5-4-3-2-1	Input 11: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
29	0-0-0-0-0-0-0-8	Input 11: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
30	0-7-6-5-4-3-2-1	Input 12: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
31	0-0-0-0-0-0-0-8	Input 12: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
32	0-7-6-5-4-3-2-1	Input 13: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
33	0-0-0-0-0-0-0-8	Input 13: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
34	0-7-6-5-4-3-2-1	Input 14: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
35	0-0-0-0-0-0-0-8	Input 14: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
36	0-7-6-5-4-3-2-1	Input 15: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
37	0-0-0-0-0-0-0-8	Input 15: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
38	0-7-6-5-4-3-2-1	Input 16: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
39	0-0-0-0-0-0-0-8	Input 16: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)

40	0-7-6-5-4-3-2-1	Input 17: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
41	0-0-0-0-0-0-0-8	Input 17: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
42	0-7-6-5-4-3-2-1	Input 18: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
43	0-0-0-0-0-0-0-8	Input 18: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
44	0-7-6-5-4-3-2-1	Input 19: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
45	0-0-0-0-0-0-0-8	Input 19: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
46	0-7-6-5-4-3-2-1	Input 20: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
47	0-0-0-0-0-0-0-8	Input 20: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
48	0-7-6-5-4-3-2-1	Output 1: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
49	0-0-0-0-0-0-0-8	Output 1: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
50	0-7-6-5-4-3-2-1	Output 2: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
51	0-0-0-0-0-0-0-8	Output 2: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
52	0-7-6-5-4-3-2-1	Output 3: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
53	0-0-0-0-0-0-0-8	Output 3: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
54	0-7-6-5-4-3-2-1	Output 4: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
55	0-0-0-0-0-0-0-8	Output 4: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
56	0-7-6-5-4-3-2-1	Output 5: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
57	0-0-0-0-0-0-0-8	Output 5: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
58	0-7-6-5-4-3-2-1	Output 6: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
59	0-0-0-0-0-0-0-8	Output 6: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
60	0-7-6-5-4-3-2-1	Output 7: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
61	0-0-0-0-0-0-0-8	Output 7: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
62	0-7-6-5-4-3-2-1	Output 8: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
63	0-0-0-0-0-0-0-8	Output 8: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
64	0-7-6-5-4-3-2-1	Output 9: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
65	0-0-0-0-0-0-0-8	Output 9: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
66	0-7-6-5-4-3-2-1	Output 10: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
67	0-0-0-0-0-0-0-8	Output 10: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
68	0-7-6-5-4-3-2-1	Output 11: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
69	0-0-0-0-0-0-0-8	Output 11: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
70	0-7-6-5-4-3-2-1	Output 12: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
71	0-0-0-0-0-0-0-8	Output 12: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
72	0-7-6-5-4-3-2-1	Output 13: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
73	0-0-0-0-0-0-0-8	Output 13: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
74	0-7-6-5-4-3-2-1	Output 14: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
75	0-0-0-0-0-0-0-8	Output 14: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
76	0-7-6-5-4-3-2-1	Output 15: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
77	0-0-0-0-0-0-0-8	Output 15: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
78	0-7-6-5-4-3-2-1	Output 16: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
79	0-0-0-0-0-0-0-8	Output 16: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
80	0-7-6-5-4-3-2-1	Output 17: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
81	0-0-0-0-0-0-0-8	Output 17: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
82	0-7-6-5-4-3-2-1	Output 18: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
83	0-0-0-0-0-0-0-8	Output 18: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
84	0-7-6-5-4-3-2-1	Output 19: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
85	0-0-0-0-0-0-0-8	Output 19: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
86	0-7-6-5-4-3-2-1	Output 20: Bits6-0 = RD-8C, RW-8C Faders 7-1 assignment, (Bit7 is always 0)
87	0-0-0-0-0-0-0-8	Output 20: Bit0 = RD-8C, RW-8C Fader 8 assignment, (Bits7-1 are always 0)
88	\$F7	Stop Byte

40 – RD-8C, RW-8C Fader Assignments Download

(Same as RD-8C, RW-8C Fader Assignments Response above, except Byte#7: message type = 40 = \$28)

64 - Preset Dump Request

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$40	Message type 64 (\$40) = Preset Dump Request
8	pp	Preset Number: 0-34 = preset 1-35
9	\$F7	Stop byte

Preset Dump Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$7F	Preset Dump Identifier, (preset dumps are universally received)
7	vv	Firmware Revision, (compatibility code)
8	pp	Preset Number: 0-34 = preset 1-35
9	x-13-12-11-10-9-8-7	Number of data bytes to follow; bits 13-7
10	x-6-5-4-3-2-1-0	Number of data bytes to follow; bits 6-0
11-nnn,nnn	xx	Data bytes; (Note: most significant bit may be set)

66 - Local Preset Recall Update

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$42	Message type 66 (\$42) = Local Preset Recall Update
8	pp	New Preset #: 0 = Preset 1, 1 = Preset 2, ... 34 = Preset 35
9	\$F7	Stop byte

67 - Local Gain Change Update

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers, see Note #1 on page 1</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	$n = (\text{device id} - 1)$, where \$0-F = device 1-16 respectively
7	\$43	Message type 67 (\$43) = Local Gain Change Update
8	xx	Channel: 0-19 = Inputs 1-20, 64-83 = Outputs 1-20
9	yy	Gain bits 13-7; 7692 to 8312 = -50 to +12 dB in 0.1 dB steps, (8192 = 0 dB)
10	zz	Gain bits 6-0
11	\$F7	Stop byte

68 - Local Mute Change Update

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (\$ denotes hexadecimal numbers, see Note #1 on page 1)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	06	24.24M Model number
6	\$0n	n = (device id - 1), where \$0-F = device 1-16 respectively
7	\$44	Message type 68 (\$44) = Local Mute Change Update
8	0-7-6-5-4-3-2-1	Inputs 1-7 Mute Status (0 = Not Muted, 1 = Muted)
9	0-14-13-12-11-10-9-8	Inputs 8-14 Mute Status
10	0-x-20-19-18-17-16-15	Inputs 15-20 Mute Status
11	0-7-6-5-4-3-2-1	Outputs 1-7 Mute Status
12	0-14-13-12-11-10-9-8	Outputs 8-14 Mute Status
13	0-x-20-19-18-17-16-15	Outputs 15-20 Mute Status
14	\$F7	Stop byte

Bandwidth vs. Q-index Byte to Transmit (\$ denotes Hexadecimal)

$$BW = (1/3) * 2^{[(Q-index - 64)/12]}$$

<u>BW(oct)</u>	<u>Q-index</u>	<u>BW(oct)</u>	<u>Q-index</u>	<u>BW(oct)</u>	<u>Q-index</u>
0.016	\$0B	0.105	\$2C	0.667	\$4C
0.017	\$0C	0.111	\$2D	0.706	\$4D
0.018	\$0D	0.118	\$2E	0.748	\$4E
0.019	\$0E	0.125	\$2F	0.793	\$4F
0.020	\$0F	0.132	\$30	0.840	\$50
0.021	\$10	0.140	\$31	0.890	\$51
0.022	\$11	0.148	\$32	0.943	\$52
0.023	\$12	0.157	\$33	1.00	\$53
0.025	\$13	0.167	\$34	1.06	\$54
0.026	\$14	0.177	\$35	1.12	\$55
0.028	\$15	0.187	\$36	1.19	\$56
0.029	\$16	0.198	\$37	1.26	\$57
0.031	\$17	0.210	\$38	1.33	\$58
0.033	\$18	0.222	\$39	1.41	\$59
0.035	\$19	0.236	\$3A	1.50	\$5A
0.037	\$1A	0.250	\$3B	1.59	\$5B
0.039	\$1B	0.265	\$3C	1.68	\$5C
0.042	\$1C	0.280	\$3D	1.78	\$5D
0.044	\$1D	0.297	\$3E	1.89	\$5E
0.047	\$1E	0.315	\$3F	2.00	\$5F
0.050	\$1F	0.333	\$40	2.12	\$60
0.052	\$20	0.353	\$41	2.24	\$61
0.056	\$21	0.374	\$42	2.38	\$62
0.059	\$22	0.396	\$43	2.52	\$63
0.062	\$23	0.420	\$44	2.67	\$64
0.066	\$24	0.445	\$45	2.83	\$65
0.070	\$25	0.471	\$46	2.99	\$66
0.074	\$26	0.499	\$47	3.17	\$67
0.079	\$27	0.529	\$48	3.36	\$68
0.083	\$28	0.561	\$49	3.56	\$69
0.088	\$29	0.594	\$4A	3.77	\$6A
0.094	\$2A	0.629	\$4B	4.00	\$6B
0.099	\$2B				

Sample Frequency Bytes to Transmit (\$ denotes Hexadecimal)

<u>Frequency(Hz)</u>	<u>Byte1(bit14)</u>	<u>Byte2(bits13-7)</u>	<u>Byte3(bits6-0)</u>
LPF-Off	\$01	\$1C	\$41
20,000	\$01	\$1C	\$40
19,500	\$01	\$18	\$2C
19,000	\$01	\$14	\$38
18,500	\$01	\$10	\$44
18,000	\$01	\$0C	\$50
17,500	\$01	\$08	\$5C
17,000	\$01	\$04	\$68
16,500	\$01	\$00	\$74
16,000	\$00	\$7D	\$00
15,500	\$00	\$79	\$0C
15,000	\$00	\$75	\$18
14,500	\$00	\$71	\$24
14,000	\$00	\$6D	\$30
13,500	\$00	\$69	\$3C
13,000	\$00	\$65	\$48
12,500	\$00	\$61	\$54
12,000	\$00	\$5D	\$60
11,500	\$00	\$59	\$6C
11,000	\$00	\$55	\$78
10,500	\$00	\$52	\$04
10,000	\$00	\$4E	\$10
9,500	\$00	\$4A	\$1C
9,000	\$00	\$46	\$28
8,500	\$00	\$42	\$34
8,000	\$00	\$3E	\$40
7,500	\$00	\$3A	\$4C
7,000	\$00	\$36	\$58
6,500	\$00	\$32	\$64
6,000	\$00	\$2E	\$70
5,500	\$00	\$2A	\$7C
5,000	\$00	\$27	\$08
4,500	\$00	\$23	\$14
4,000	\$00	\$1F	\$20
3,500	\$00	\$1B	\$2C
3,000	\$00	\$17	\$38
2,500	\$00	\$13	\$44
2,000	\$00	\$0F	\$50
1,500	\$00	\$0B	\$5C
1,000	\$00	\$07	\$68
900	\$00	\$07	\$04
800	\$00	\$06	\$20
700	\$00	\$05	\$3C
600	\$00	\$04	\$58
500	\$00	\$03	\$74
400	\$00	\$03	\$10
300	\$00	\$02	\$2C
200	\$00	\$01	\$48
100	\$00	\$00	\$64
90	\$00	\$00	\$5A
80	\$00	\$00	\$50
70	\$00	\$00	\$46
60	\$00	\$00	\$3C
50	\$00	\$00	\$32
40	\$00	\$00	\$28
30	\$00	\$00	\$1E
20	\$00	\$00	\$14
HPF-Off	\$00	\$00	\$13

Sample Gain Bytes to Transmit (\$ denotes Hexadecimal)

<u>Gain(dB)</u>	<u>Gain Value</u>	<u>Byte1(bits13-7)</u>	<u>Byte2(bits6-0)</u>
+15	8342	\$41	\$16
+14	8332	\$41	\$0C
+13	8322	\$41	\$02
+12	8312	\$40	\$78
+11	8302	\$40	\$6E
+10	8292	\$40	\$64
+ 9	8282	\$40	\$5A
+ 8	8272	\$40	\$50
+ 7	8262	\$40	\$46
+ 6	8252	\$40	\$3C
+ 5	8242	\$40	\$32
+ 4	8232	\$40	\$28
+ 3	8222	\$40	\$1E
+ 2	8212	\$40	\$14
+ 1	8202	\$40	\$0A
0	8192	\$40	\$00
- 1	8182	\$3F	\$76
- 2	8172	\$3F	\$6C
- 3	8162	\$3F	\$62
- 4	8152	\$3F	\$58
- 5	8142	\$3F	\$4E
- 6	8132	\$3F	\$44
- 7	8122	\$3F	\$3A
- 8	8112	\$3F	\$30
- 9	8102	\$3F	\$26
-10	8092	\$3F	\$1C
-11	8082	\$3F	\$12
-12	8072	\$3F	\$08
-13	8062	\$3E	\$7E
-14	8052	\$3E	\$74
-15	8042	\$3E	\$6A
-16	8032	\$3E	\$60
-17	8022	\$3E	\$56
-18	8012	\$3E	\$4C
-19	8002	\$3E	\$42
-20	7992	\$3E	\$38
-21	7982	\$3E	\$2E
-22	7972	\$3E	\$24
-23	7962	\$3E	\$1A
-24	7952	\$3E	\$10
-25	7942	\$3E	\$06
-26	7932	\$3D	\$7C
-27	7922	\$3D	\$72
-28	7912	\$3D	\$68
-29	7902	\$3D	\$5E
-30	7892	\$3D	\$54
-31	7882	\$3D	\$4A
-32	7872	\$3D	\$40
-33	7862	\$3D	\$36
-34	7852	\$3D	\$2C
-35	7842	\$3D	\$22
-36	7832	\$3D	\$18
-37	7822	\$3D	\$0E
-38	7812	\$3D	\$04
-39	7802	\$3C	\$7A
-40	7792	\$3C	\$70
-41	7782	\$3C	\$66
-42	7772	\$3C	\$5C
-43	7762	\$3C	\$52
-44	7752	\$3C	\$48
-45	7742	\$3C	\$3E
-46	7732	\$3C	\$34
-47	7722	\$3C	\$2A
-48	7712	\$3C	\$20
-49	7702	\$3C	\$16
-50	7692	\$3C	\$0C
MUTE	7691	\$3C	\$0B