

ASHLY WR5 Remote Protocol (02/23/2018)

Notes: WR5 baud rate is 9600bps, with 1 start byte, 1 stop byte, no parity. Hardware is logic 5v current loop, similar to MIDI.
A Serial Number of 0x0000 = Non WR5 Host Message to update WR5 Remotes ONLY.

Device Discovery Request (for all Ashly remotes)

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0D	Device Discovery Model number
6	00	Message type 0 = Device Discovery Request
7	\$F7	Stop Byte

Device Discovery Response (same format for all Ashly remotes)

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0D	Device Discovery Model number
6	01	Message type 1 = Device Discovery Response
7	\$0C	Device Model number, (WR5 Model number)
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10-29	mn	WR5 name characters 1-20
30	\$F7	Stop Byte

0 – WR5 Settings Inquiry

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	(PC Device Id)
7	\$00	Message type 00 = WR5 Settings Inquiry
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	\$F7	Stop Byte

1 – WR5 Settings Response

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	(PC Device Id)
7	\$01	Message type 01 = WR5 Settings Response
8	xx	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	yy	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	id	Target Device Id, ie: 24.24M Device Id

11-30	<i>nn</i>	WR5 name characters 1-20
31	<i>op</i>	Options: bit 0 = exclusive source select, bit 1 = Disable Output zone lvl, bit 2 = use Cksums bit 6 = Supports LogicOut & matrix Mixer (READ ONLY)
32	0-7-6-5-4-3-2-1	Output 1-7 Zone Selection
33	0-14-13-12-11-10-9-8	Output 8-14 Zone Selection
34	0-x-20-19-18-17-16-15	Output 15-20 Zone Selection
35	<i>sp</i>	Output Zone Selection spare
36	<i>ft</i>	Button-1 function type
37	<i>ll</i>	Button-1 lower limit (0-99/upper limit)
38	<i>ul</i>	Button-1 upper limit (lower limit/0-99)
39	<i>pn</i>	Button-1 preset number (0-99)
40	0-7-6-5-4-3-2-1	Button-1 input 1-7 assignments
41	0-14-13-12-11-10-9-8	Button-1 input 8-14 assignments
42	0-x-20-19-18-17-16-15	Button-1 input 15-20 assignments
43	<i>sp</i>	Button-1 input assignments spare
44	0-7-6-5-4-3-2-1	Button-1 output 1-7 assignments
45	0-14-13-12-11-10-9-8	Button-1 output 8-14 assignments
46	0-x-20-19-18-17-16-15	Button-1 output 15-20 assignments
47	<i>sp</i>	Button-1 output assignments spare
48	<i>ft</i>	Button-2 function type
49	<i>ll</i>	Button-2 lower limit (0-99/upper limit)
50	<i>ul</i>	Button-2 upper limit (lower limit/0-99)
51	<i>pn</i>	Button-2 preset number (0-99)
52	0-7-6-5-4-3-2-1	Button-2 input 1-7 assignments
53	0-14-13-12-11-10-9-8	Button-2 input 8-14 assignments
54	0-x-20-19-18-17-16-15	Button-2 input 15-20 assignments
55	<i>sp</i>	Button-2 input assignments spare
56	0-7-6-5-4-3-2-1	Button-2 output 1-7 assignments
57	0-14-13-12-11-10-9-8	Button-2 output 8-14 assignments
58	0-x-20-19-18-17-16-15	Button-2 output 15-20 assignments
59	<i>sp</i>	Button-2 output assignments spare
60	<i>ft</i>	Button-3 function type
61	<i>ll</i>	Button-3 lower limit (0-99/upper limit)
62	<i>ul</i>	Button-3 upper limit (lower limit/0-99)
63	<i>pn</i>	Button-3 preset number (0-99)
64	0-7-6-5-4-3-2-1	Button-3 input 1-7 assignments
65	0-14-13-12-11-10-9-8	Button-3 input 8-14 assignments
66	0-x-20-19-18-17-16-15	Button-3 input 15-20 assignments
67	<i>sp</i>	Button-3 input assignments spare
68	0-7-6-5-4-3-2-1	Button-3 output 1-7 assignments
69	0-14-13-12-11-10-9-8	Button-3 output 8-14 assignments
70	0-x-20-19-18-17-16-15	Button-3 output 15-20 assignments
71	<i>sp</i>	Button-3 output assignments spare
72	<i>ft</i>	Button-4 function type
73	<i>ll</i>	Button-4 lower limit (0-99/upper limit)
74	<i>ul</i>	Button-4 upper limit (lower limit/0-99)
75	<i>pn</i>	Button-4 preset number (0-99)
76	0-7-6-5-4-3-2-1	Button-4 input 1-7 assignments
77	0-14-13-12-11-10-9-8	Button-4 input 8-14 assignments
78	0-x-20-19-18-17-16-15	Button-4 input 15-20 assignments
79	<i>sp</i>	Button-4 input assignments spare
80	0-7-6-5-4-3-2-1	Button-4 output 1-7 assignments
81	0-14-13-12-11-10-9-8	Button-4 output 8-14 assignments
82	0-x-20-19-18-17-16-15	Button-4 output 15-20 assignments
83	<i>sp</i>	Button-4 output assignments spare
84	<i>ft</i>	Button-5 function type
85	<i>ll</i>	Button-5 lower limit (0-99/upper limit)
86	<i>ul</i>	Button-5 upper limit (lower limit/0-99)
87	<i>pn</i>	Button-5 preset number (0-99)
88	0-7-6-5-4-3-2-1	Button-5 input 1-7 assignments
89	0-14-13-12-11-10-9-8	Button-5 input 8-14 assignments

90	0-x-20-19-18-17-16-15	Button-5 input 15-20 assignments
91	<i>sp</i>	Button-5 input assignments spare
92	0-7-6-5-4-3-2-1	Button-5 output 1-7 assignments
93	0-14-13-12-11-10-9-8	Button-5 output 8-14 assignments
94	0-x-20-19-18-17-16-15	Button-5 output 15-20 assignments
95	<i>sp</i>	Button-5 output assignments spare
96	<i>ft</i>	Button-6 function type
97	<i>ll</i>	Button-6 lower limit (0-99/upper limit)
98	<i>ul</i>	Button-6 upper limit (lower limit/0-99)
99	<i>pn</i>	Button-6 preset number (0-99)
100	0-7-6-5-4-3-2-1	Button-6 input 1-7 assignments
101	0-14-13-12-11-10-9-8	Button-6 input 8-14 assignments
102	0-x-20-19-18-17-16-15	Button-6 input 15-20 assignments
103	<i>sp</i>	Button-6 input assignments spare
104	0-7-6-5-4-3-2-1	Button-6 output 1-7 assignments
105	0-14-13-12-11-10-9-8	Button-6 output 8-14 assignments
106	0-x-20-19-18-17-16-15	Button-6 output 15-20 assignments
107	<i>sp</i>	Button-6 output assignments spare
108	\$F7	Stop Byte

Function types: 0 = off, 1 = preset recall, 2 = preset scroll, 3 = gain, 4 = mute, 5 = source selection,
 Functions added (2.0) 6 = Logic Out (Active High), 7 = Logic Out (Active Low), 8 = Matrix Mixer

2 – WR5 Settings Download

(same as WR5 Settings Response above, but with byte-7 as \$02)

3 – Preset Number & Mute Status Inquiry

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$03	Message type 03 = Target Device Preset Number & Mute Status Inquiry
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	\$F7	Stop Byte

4 – Preset Number & Mute Status Response

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$04	Message type 04 = Target Device Preset Number & Mute Status Response
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	<i>pn</i>	Target device preset number, (24.24M preset number - 1)
11	0-7-6-5-4-3-2-1	Target device inputs 1-7 mute status, note: high bit means channel is muted
12	0-14-13-12-11-10-9-8	Target device inputs 8-14 mute status
13	0-x-20-19-18-17-16-15	Target device inputs 15-20 mute status
14	<i>sp</i>	Target device input mute status spare
15	0-7-6-5-4-3-2-1	Target device outputs 1-7 mute status, note: high bit means channel is muted
16	0-14-13-12-11-10-9-8	Target device outputs 8-14 mute status
17	0-x-20-19-18-17-16-15	Target device outputs 15-20 mute status

18 *sp* Target device output mute status spare
 19 \$F7 Stop Byte

5 – Output Gain & Mixer Mutes Inquiry

1 \$F0 Start byte (*\$ denotes hexadecimal numbers*)
 2 00 id escapement
 3 01 Ashly manufacturer id most significant byte
 4 \$2A Ashly manufacturer id least significant byte
 5 \$0C WR5 Model number
 6 00 Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
 7 \$05 Message type 05 = Target Device Output Gain & Mixer Mutes Inquiry
 8 00 Device Serial number: bits 13-7, (send the byte value 00 when using 3rd-party control systems)
 9 01 Device Serial number: bits 6-0, (send the byte value 01 when using 3rd-party control systems)
 10 *nm* Target Device output channel
 11 \$F7 Stop Byte

6 – Output Gain & Mixer Mutes Response

1 \$F0 Start byte (*\$ denotes hexadecimal numbers*)
 2 00 id escapement
 3 01 Ashly manufacturer id most significant byte
 4 \$2A Ashly manufacturer id least significant byte
 5 \$0C WR5 Model number
 6 00 Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
 7 \$06 Message type 06 = Target Device Output Gain & Mixer Mutes Response
 8 00 Device Serial number: bits 13-7, (send the byte value 00 when using 3rd-party control systems)
 9 01 Device Serial number: bits 6-0, (send the byte value 01 when using 3rd-party control systems)
 10 *nm* Target device output channel requested, 0 to n = output 1 to n+1
 11 *ll* Target device output channel level, formatted in the range of 0-99
 12 0-7-6-5-4-3-2-1 Target device output channel's source 1-7 mute status, note: high bit means channel is muted
 13 0-14-13-12-11-10-9-8 Target device output channel's source 8-14 mute status
 14 0-x-20-19-18-17-16-15 Target device output channel's source 15-20 mute status
 15 *sp* Target device output channel's source spare
 16 \$F7 Stop Byte

7 – Channel Gain Inquiry

1 \$F0 Start byte (*\$ denotes hexadecimal numbers*)
 2 00 id escapement
 3 01 Ashly manufacturer id most significant byte
 4 \$2A Ashly manufacturer id least significant byte
 5 \$0C WR5 Model number
 6 00 Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
 7 \$07 Message type 07 = Target Device Channel Gain Inquiry
 8 00 Device Serial number: bits 13-7, (send the byte value 00 when using 3rd-party control systems)
 9 01 Device Serial number: bits 6-0, (send the byte value 01 when using 3rd-party control systems)
 10 *nm* Target Device channel: 0-63 = inputs 1-64, 64-127 = outputs 1-64
 11 \$F7 Stop Byte

8 – Channel Gain Response

1 \$F0 Start byte (*\$ denotes hexadecimal numbers*)
 2 00 id escapement
 3 01 Ashly manufacturer id most significant byte
 4 \$2A Ashly manufacturer id least significant byte
 5 \$0C WR5 Model number
 6 00 Target Device Id, (Note: for 24.24M use front panel Device Id – 1)

7	\$08	Message type 08 = Target Device Channel Gain Response
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	<i>nm</i>	Target Device channel: 0-63 = inputs 1-64, 64-127 = outputs 1-64
11	<i>ll</i>	Target device channel level, formatted in the range of 0-99
12	\$F7	Stop Byte

9 – Preset Recall Message *

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$09	Message type 09 = Target Device Preset Recall Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	<i>pn</i>	Target device preset number, (24.24M preset number - 1)
11	\$F7	Stop Byte

10 – Mute/Unmute Message *

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$0A	Message type 10 = Target Device Mute/Unmute Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	<i>um</i>	0 = unmute selected channels, 1-7F = mute selected channels
11	0-7-6-5-4-3-2-1	Target device inputs 1-7 selection, note: high bit means channel is selected for muting/unmuting
12	0-14-13-12-11-10-9-8	Target device inputs 8-14 selection
13	0-x-20-19-18-17-16-15	Target device inputs 15-20 selection
14	<i>sp</i>	Target device input selection spare
15	0-7-6-5-4-3-2-1	Target device outputs 1-7 selection
16	0-14-13-12-11-10-9-8	Target device outputs 8-14 selection
17	0-x-20-19-18-17-16-15	Target device outputs 15-20 selection
18	<i>sp</i>	Target device output selection spare
19	\$F7	Stop Byte

11 – Gain Message *

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$0B	Message type 11 = Target Device Gain Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	<i>ll</i>	Target device new gain value, formatted in the range of 0-99
11	0-7-6-5-4-3-2-1	Target device inputs 1-7 selection, note: high bit means channel is selected for new gain value
12	0-14-13-12-11-10-9-8	Target device inputs 8-14 selection
13	0-x-20-19-18-17-16-15	Target device inputs 15-20 selection
14	<i>sp</i>	Target device input selection spare

15	0-7-6-5-4-3-2-1	Target device outputs 1-7 selection
16	0-14-13-12-11-10-9-8	Target device outputs 8-14 selection
17	0-x-20-19-18-17-16-15	Target device outputs 15-20 selection
18	sp	Target device output selection spare
19	\$F7	Stop Byte

12 – Mixer Source Mute/Unmute Message *

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$0C	Message type 12 = Target Device Mixer Source Mute/Unmute Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	0-7-6-5-4-3-2-1	Target device mixer (output channel) 1-7 selection
11	0-14-13-12-11-10-9-8	Target device mixer (output channel) 8-14 selection
12	0-x-20-19-18-17-16-15	Target device mixer (output channel) 15-20 selection
13	sp	Target device mixer (output channel) selection spare
14	0-7-6-5-4-3-2-1	Target device sources (mix faders) 1-7 to Mute, note: high = fader mutes, low = fader not affected
15	0-14-13-12-11-10-9-8	Target device sources (mix faders) 8-14 to Mute
16	0-x-20-19-18-17-16-15	Target device sources (mix faders) 15-20 to Mute
17	sp	Target device sources (mix faders) to Mute spare
18	0-7-6-5-4-3-2-1	Target device sources (mix faders) 1-7 to Unmute, note: high = fader unmutes, low = not affected
19	0-14-13-12-11-10-9-8	Target device sources (mix faders) 8-14 to Unmute
20	0-x-20-19-18-17-16-15	Target device sources (mix faders) 15-20 to Unmute
21	sp	Target device sources (mix faders) to Unmute spare
22	\$F7	Stop Byte

13 – WR5 Settings Download Confirm

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	(PC Device Id)
7	\$0D	Message type 13 = WR5 Settings Download Confirm
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	zz	Download Status (0 = Completed OK) (1-FF = Error)
11	\$F7	Stop Byte

14 – WR5 Identify Remote

<u>Byte#</u>	<u>Value</u>	<u>Description</u>
1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	(PC Device Id)
7	\$0E	Message type 14
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	\$F7	Stop Byte

15 – Logic Output Status Inquiry

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$0F	Message type 15 = Target Device Logic Output inquiry
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	\$F7	Stop Byte

16 – Logic Output Status Response

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$10	Message type 16 = Target Device Logic Output Status Response
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	0-7-6-5-4-3-2-1	Target device inputs 1-7 logic status, note: high bit means channel is high (fet off)
11	0-14-13-12-11-10-9-8	Target device inputs 8-14 logic status
12	0-x-20-19-18-17-16-15	Target device inputs 15-20 logic status
13	sp	Target device input logic status spare
14	\$F7	Stop Byte

17 – Logic Output Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$11	Message type 17 = Target Device Logic Output Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	Zz	Logic Output Number (0 to number of logic outputs)
11	aa	Logic Output Value (0 = Low, Fet on 1= High, Fet Off)
12	\$F7	Stop Byte

18 – Matrix Mixer Inquiry

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$12	Message type 18 = Target Device Matrix Mixer Inquiry
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	zz	Output Zone to Request Mixer Settings.
11	aa	Mixer Input Number
12	\$F7	Stop Byte

19 – Matrix Mixer Response

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number

6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$13	Message type 19 = Target Device Matrix Mixer Response
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	zz	Output Zone that Mixer Settings are For.
11	aa	Mixer Input Number
12	aa	Mix Level
13	\$F7	Stop Byte

20 – Matrix Mixer Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$14	Message type 20 = Target Device Matrix Mixer Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	ll	Target device new gain value, formatted in the range of 0-99
11	0-7-6-5-4-3-2-1	Target device Zone outputs 1-7 selection
12	0-14-13-12-11-10-9-8	Target device Zone outputs 8-14 selection
13	0-x-20-19-18-17-16-15	Target device Zone outputs 15-20 selection
14	sp	Target device Zone output selection spare
15	0-7-6-5-4-3-2-1	Target device Mixer inputs 1-7 selection, note: high bit means channel is selected for new level
16	0-14-13-12-11-10-9-8	Target device Mixer inputs 8-14 selection
17	0-x-20-19-18-17-16-15	Target device Mixer inputs 15-20 selection
18	sp	Target device Mixer input selection spare
19	\$F7	Stop Byte

Notes on Checksum:

The Checksum message may be prepended to all wr5 messages to ensure the integrity of the messages. This may be omitted if the flag to require it is not set in the options. To Calculate the checksum.

- 1.) Add up all the following messages bytes.
- 2.) Take the 1's Complement of the value from step 1 (invert the bits)
- 3.) Add 1 to the value from step 2 (this will give you the two's complement.)
- 4.) And the value from step 3 with 0x7F.
- 5.) The value from step 4 Is the value that should be used in byte 11.

21 – Checksum Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	00	Target Device Id, (Note: for 24.24M use front panel Device Id – 1)
7	\$15	Message type 21 = Checksum Message
8	00	Device Serial number: bits 13-7, (send the byte value 00 when using 3 rd -party control systems)
9	01	Device Serial number: bits 6-0, (send the byte value 01 when using 3 rd -party control systems)
10	aa	Message to Follow Type
11	bb	Message to Follow Checksum
12	\$F7	Stop Byte

22 – Reprogram Message

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	Reserved
7	\$16	Message type 22 = Enter Reprogram Message
8	xx	Device Serial number: bits 13-7

9	yy	Device Serial number: bits 6-0
10	\$33	Reserved
11	\$55	Reserved
12	\$F7	Stop Byte

23 – Download Firmware Protocol Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	Reserved
7	\$17	Message type 23 = Download Firmware Protocol Msg
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	len	length of message (Byte 1)
**	\$F7	Stop Byte

24 – Download Firmware CRC Error Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	Reserved
7	\$18	Message type 24 = Download Firmware Protocol Msg
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
11	len	length of message (Byte 1)
**	\$F7	Stop Byte

25 – WR5 Firmware Version Inquiry Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	Reserved
7	\$19	Message type 25 =Firmware Version Inquiry Msg
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	\$F7	Stop Byte

26 – WR5 Firmware Version Response Msg

1	\$F0	Start byte (<i>\$ denotes hexadecimal numbers</i>)
2	00	id escapement
3	01	Ashly manufacturer id most significant byte
4	\$2A	Ashly manufacturer id least significant byte
5	\$0C	WR5 Model number
6	\$7F	Reserved
7	\$1A	Message type 26 = Firmware Version Response Msg
8	xx	Device Serial number: bits 13-7
9	yy	Device Serial number: bits 6-0
10	aa	Firmware Version
11	\$F7	Stop Byte