

section 6  
**APPENDIXES**

**DMX protocol**

| DMX1 | DMX2 | DMX3 | DMX4 | Value     | Percent  | Function                                   |
|------|------|------|------|-----------|----------|--|
|      |      |      |      |           |          | <b>Shutter, Strobe, Reset, Lamp On/Off</b> |
|      |      |      |      | 0 - 19    | 0 - 7    | Shutter closed                             |
|      |      |      |      | 20 - 49   | 8 - 19   | Shutter open                               |
|      |      |      |      | 50 - 72   | 20 - 28  | Strobe, fast→slow                          |
|      |      |      |      | 73 - 79   | 29 - 31  | Shutter open                               |
|      |      |      |      | 80 - 99   | 31 - 39  | Opening pulse, fast →slow                  |
|      |      |      |      | 100 - 119 | 39 - 47  | Closing pulse, fast →slow                  |
|      |      | 1    |      | 120 - 127 | 47 - 50  | Shutter open                               |
|      |      |      |      | 128 - 147 | 50 - 58  | Random strobe, fast                        |
|      |      |      |      | 148 - 167 | 58 - 65  | Random strobe, medium                      |
|      |      |      |      | 168 - 187 | 66 - 73  | Random strobe, slow                        |
|      |      |      |      | 188 - 190 | 74 - 75  | Shutter open                               |
|      |      |      |      | 191 - 193 | 75 - 76  | Random opening pulse, fast                 |
|      |      |      |      | 194 - 196 | 76 - 77  | Random opening pulse, slow                 |
|      |      |      |      | 197 - 199 | 77 - 78  | Random closing pulse, fast                 |
|      |      |      |      | 200 - 202 | 78 - 79  | Random closing pulse, slow                 |
|      |      |      |      | 203 - 207 | 80 - 81  | Shutter open                               |
|      |      |      |      | 208 - 217 | 82 - 85  | Reset fixture, see note 1                  |
|      |      |      |      | 218 - 227 | 85 - 89  | Shutter open                               |
|      |      |      |      | 228 - 237 | 89 - 93  | Lamp on                                    |
|      |      |      |      | 238 - 247 | 93 - 97  | Shutter open                               |
|      |      |      |      | 248 - 255 | 97 - 100 | Lamp off: time > 5 seconds, see note 2     |
|      |      | 2    |      |           |          | <b>Dimmer</b>                              |
|      |      |      |      | 0 - 255   | 0 - 100  | Closed → open                              |
|      |      |      |      |           |          | <b>Color</b>                               |
|      |      |      |      |           |          | Continuous Scroll: full color positions:   |
|      |      |      |      | 0         | 0        | White                                      |
|      |      |      |      | 12        | 5        | CTC  |
|      |      |      |      | 24        | 9        | Yellow 603                                 |
|      |      |      |      | 36        | 14       | Blue 104                                   |
|      |      |      |      | 48        | 19       | Pink 312                                   |
|      |      |      |      | 60        | 23       | Green 206                                  |
|      |      |      |      | 72        | 28       | Blue 108                                   |
|      |      |      |      | 84        | 33       | Red 301                                    |
|      |      |      |      | 96        | 37       | Magenta 507                                |
|      |      |      |      | 108       | 42       | Blue 101                                   |
|      |      |      |      | 120       | 47       | Orange 306                                 |
|      |      |      |      | 132       | 42       | Green 202                                  |
|      |      |      |      | 144       | 56       | Purple 502                                 |
|      |      |      |      |           |          | Stepped Scroll                             |
|      |      |      |      | 156 - 159 | 61 - 63  | Purple 502                                 |
|      |      |      |      | 160 - 163 | 63 - 64  | Green 202                                  |
|      |      | 3    |      | 164 - 167 | 64 - 65  | Orange 306                                 |
|      |      |      |      | 168 - 171 | 66 - 67  | Blue 101                                   |
|      |      |      |      | 172 - 175 | 67 - 68  | Magenta 507                                |
|      |      |      |      | 176 - 179 | 69 - 70  | Red 301                                    |
|      |      |      |      | 180 - 183 | 70 - 72  | Blue 108                                   |
|      |      |      |      | 184 - 187 | 72 - 73  | Green 206                                  |
|      |      |      |      | 188 - 191 | 74 - 75  | Pink 312                                   |
|      |      |      |      | 192 - 195 | 75 - 76  | Blue 104                                   |
|      |      |      |      | 196 - 199 | 77 - 78  | Yellow 603                                 |
|      |      |      |      | 200 - 203 | 78 - 79  | CTC  |
|      |      |      |      | 204 - 207 | 80 - 81  | White                                      |
|      |      |      |      |           |          | Continuous Rotation                        |
|      |      |      |      | 208 - 226 | 82 - 88  | CW, fast → slow                            |
|      |      |      |      | 227 - 245 | 89 - 96  | CCW, slow → fast                           |
|      |      |      |      |           |          | Random color                               |
|      |      |      |      | 246 - 248 | 96 - 97  | Fast                                       |
|      |      |      |      | 249 - 251 | 98 - 98  | Medium                                     |
|      |      |      |      | 252 - 255 | 99 - 100 | Slow                                       |

| DMX1 | DMX2 | DMX3 | DMX4 | Value     | Percent  | Function  |
|------|------|------|------|-----------|----------|---|
|      |      |      |      |           |          | <b>Gobo selection and shake</b>                           |
|      |      |      |      | 0 - 9     | 0 - 3    | Open gobo   |
|      |      |      |      | 10 - 19   | 4 - 7    | Gobo 1  |
|      |      |      |      | 20 - 29   | 8 - 11   | Gobo 2  |
|      |      |      |      | 30 - 39   | 12 - 15  | Gobo 3  |
|      |      |      |      | 40 - 49   | 16 - 19  | Gobo 4  |
|      |      |      |      | 50 - 59   | 19 - 23  | Gobo 5  |
|      |      |      |      | 60 - 69   | 23 - 27  | Gobo 6  |
|      |      |      |      | 70 - 79   | 27 - 31  | Gobo 7  |
|      |      |      |      | 80 - 89   | 31 - 35  | Gobo 8  |
|      | 4    |      |      |           |          | Shake   |
|      |      |      |      | 90 - 104  | 35 - 41  | Gobo 8 slow → fast  |
|      |      |      |      | 105 - 119 | 41 - 47  | Gobo 7 slow → fast  |
|      |      |      |      | 120 - 134 | 47 - 52  | Gobo 6 slow → fast  |
|      |      |      |      | 135 - 149 | 53 - 59  | Gobo 5 slow → fast  |
|      |      |      |      | 150 - 164 | 59 - 64  | Gobo 4 slow → fast  |
|      |      |      |      | 165 - 179 | 65 - 70  | Gobo 3 slow → fast  |
|      |      |      |      | 180 - 194 | 70 - 76  | Gobo 2 slow → fast  |
|      |      |      |      | 195 - 209 | 76 - 82  | Gobo 1 slow → fast  |
|      |      |      |      |           |          | Continuous rotation                                       |
|      |      |      |      | 210 - 232 | 82 - 91  | CW slow → fast  |
|      |      |      |      | 233 - 255 | 91 - 100 | CCW fast → slow   |
|      |      |      |      |           |          | <b>Gobo selection and shake</b>                           |
|      |      |      |      |           |          | Indexing: set position on channel 5                       |
|      |      |      |      | 0 - 4     | 0 - 1    | Open gobo   |
|      |      |      |      | 5 - 9     | 1 - 3    | Gobo 1  |
|      |      |      |      | 10 - 14   | 3 - 5    | Gobo 2  |
|      |      |      |      | 15 - 19   | 6 - 7    | Gobo 3  |
|      |      |      |      | 20 - 24   | 7 - 9    | Gobo 4  |
|      |      |      |      | 25 - 29   | 9 - 11   | Gobo 5  |
|      |      |      |      | 30 - 34   | 11 - 13  | Gobo 6  |
|      |      |      |      | 35 - 39   | 13 - 15  | Gobo 7  |
|      |      |      |      | 40 - 44   | 15 - 17  | Gobo 8  |
|      |      |      |      |           |          | Rotation: set velocity on channel 5                       |
|      |      |      |      | 45 - 49   | 17 - 19  | Open gobo   |
|      |      |      |      | 50 - 54   | 19 - 21  | Gobo 1  |
|      |      |      |      | 55 - 59   | 21 - 23  | Gobo 2  |
|      |      |      |      | 60 - 64   | 23 - 25  | Gobo 3  |
|      |      |      |      | 65 - 69   | 25 - 27  | Gobo 4  |
|      |      |      |      | 70 - 74   | 27 - 29  | Gobo 5  |
|      |      |      |      | 75 - 79   | 29 - 31  | Gobo 6  |
|      |      |      |      | 80 - 84   | 31 - 33  | Gobo 7  |
|      |      |      |      | 85 - 89   | 33 - 35  | Gobo 8  |
|      |      |      |      |           |          | Rotation with shake, slow → fast: set velocity on ch. 5   |
|      |      |      |      | 90 - 104  | 35 - 40  | Gobo 8  |
|      |      |      |      | 105 - 119 | 41 - 46  | Gobo 7  |
|      |      |      |      | 120 - 134 | 47 - 52  | Gobo 6  |
|      |      |      |      | 135 - 149 | 53 - 58  | Gobo 5  |
|      |      |      |      | 150 - 164 | 59 - 64  | Gobo 4  |
|      |      |      |      | 165 - 179 | 65 - 70  | Gobo 3  |
|      |      |      |      | 180 - 194 | 70 - 76  | Gobo 2  |
|      |      |      |      | 195 - 209 | 76 - 82  | Gobo 1  |
|      |      |      |      |           |          | Continuous scroll: set velocity of gobo rotation on ch. 5 |
|      |      |      |      | 210 - 232 | 82 - 91  | CW slow → fast  |
|      |      |      |      | 233 - 255 | 91 - 100 | CCW fast → slow   |
|      |      |      |      |           |          | <b>Gobo rotation (select gobo on channel 4)</b>           |
|      |      |      |      |           |          | Index position  |
|      |      |      |      | 0 - 255   | 0 - 100  | 0 - 395° (only if gobo type = indexed)                    |
|      |      |      |      |           |          | Continuous rotation (direction and speed)                 |
|      |      |      |      | 0 - 2     | 0 - 1    | No rotation   |
|      |      |      |      | 3 - 127   | 1 - 50   | CW, slow → fast   |
|      |      |      |      | 128 - 252 | 50 - 98  | CCW, fast → slow  |
|      |      |      |      | 253 - 255 | 99 - 100 | No rotation   |
|      | 5    |      |      |           |          |   |

| DMX1 | DMX2 | DMX3 | DMX4 | Value  | Percent   | Function  |
|------|------|------|------|--|---|---|
| 6    |      |      |      | 0 - 255  | 0 - 100   | <b>Focus</b><br>Infinity → 2 meters   |
| 7    |      |      |      | 0 - 19<br>20 - 79<br>80 - 89<br>90 - 149<br>150 - 215  | 0 - 7<br>8 - 31<br>31 - 35<br>35 - 58<br>59 - 84                                      | <b>Prism</b><br>Prism off<br>Rotating prism, CCW fast → slow<br>No rotation<br>Rotating prism, CW slow → fast<br>Prism off                              |
| 7    |      |      |      | 216 - 220<br>221 - 225<br>226 - 230<br>231 - 235<br>236 - 240<br>241 - 245<br>246 - 250<br>251 - 255 | 84 - 86<br>87 - 88<br>89 - 90<br>91 - 92<br>93 - 94<br>95 - 96<br>96 - 98<br>98 - 100 | Prism/Gobo Macros<br>Macro 1<br>Macro 2<br>Macro 3<br>Macro 4<br>Macro 5<br>Macro 6<br>Macro 7<br>Macro 8   |
| 8    |      |      |      | 0 - 255  | 0 - 100   | <b>Pan</b><br>Left → right (128 = neutral)  |
| -    | 9    | -    | 9    | 0 - 255  | 0 - 100   | <b>Pan Fine (LSB)</b><br>Left → right   |
| 9    | 10   | 9    | 10   | 0 - 255  | 0 - 100   | <b>Tilt</b><br>Up → down (128 = neutral)  |
| -    | 11   | -    | 11   | 0 - 255  | 0 - 100   | <b>Tilt Fine (LSB)</b><br>Up → down   |
| -    | -    | 10   | 12   | 0 - 2<br>3 - 245<br>246 - 248<br>249 - 251<br>252 - 255  | 0 - 1<br>1 - 96<br>96 - 97<br>98 - 98<br>99 - 100                                     | <b>Pan/Tilt Speed</b><br>Tracking<br>Fast → slow<br>Tracking, PTSP NORM (menu override)<br>Tracking, PTSP FAST (menu override)<br>Blackout while moving |
| -    | -    | 11   | 13   | 0 - 2<br>3 - 245<br>246 - 251<br>252 - 255   | 0 - 1<br>1 - 96<br>96 - 98<br>99 - 100  | <b>Effects Speed</b><br>Dimmer, focus<br>Tracking mode<br>Fast → slow<br>Tracking<br>Maximum speed  |
| -    | -    | 11   | 13   | 0 - 2<br>3 - 245<br>246 - 248<br>249 - 251<br>252 - 255  | 0 - 1<br>1 - 96<br>96 - 97<br>98 - 98<br>99 - 100                                     | Color<br>Tracking mode<br>Speed, fast → slow<br>Tracking, SCUT OFF (menu override)<br>Tracking, SCUT ON (menu override)<br>Blackout while moving        |
| -    | -    | 11   | 13   | 0 - 245<br>246 - 248<br>249 - 251<br>252 - 255   | 0 - 96<br>96 - 97<br>98 - 98<br>99 - 100  | Gobo selection<br>Normal (no blackout)<br>Normal, SCUT OFF (menu override)<br>Normal, SCUT ON (menu override)<br>Blackout while moving                  |
| -    | -    | 11   | 13   | 0 - 2<br>3 - 245<br>246 - 251<br>252 - 255   | 0 - 1<br>1 - 96<br>96 - 98<br>99 - 100  | Indexed gobo rotation (only if gobo type = indexed)<br>Tracking mode<br>Fast → slow<br>Tracking<br>Blackout while moving                                |
| -    | -    | 11   | 13   | 0 - 251<br>252 - 255   | 0 - 98<br>99 - 100  | Prism<br>Normal (no blackout)<br>Blackout while moving  |