DMX PROTOCOL

This section contains two DMX protocols (both from protocol version 1.0A):

- "16-bit protocol" on page 40
- "8-bit protocol" on page 43

The 16-bit is the default protocol that is used. To modify this use the control menu. For more information see "Control menu" on page 46.

16-bit protocol

DMX channel	Value	Percent	Function	Start code = 0
1			**Shutter, Strobe, Reset, Lamp On/Off**	
	0 - 19	0 - 7	Shutter Closed (lamp reduced to 700 W (E-ballast) after 10 sec.)	
	20 - 49	8 - 19	No function (Shutter Open)	
	50 - 72	20 - 28	Strobe on fast->slow	
	73 - 79	29 - 31	Shutter open, lamp reduced to 700 W (E-ballast)	
	80 - 99	32 - 39	Pulse opening fast ->slow	
	100 - 119	40 - 47	Pulse closing fast ->slow	
	120 - 127	48 - 50	No function	
	128 - 147	51 - 57	Random Strobe Fast	
	148 - 167	58 - 65	Random Strobe Medium	
	168 - 187	66 - 73	Random Strobe Slow	
	188 - 190	74 - 74	No function	
	191 - 193	75	Random pulse opening fast	
	194 - 196	76	Random pulse opening slow	
	197 - 199	77	Random pulse closing fast	
	200 - 202	78 - 79	Random pulse closing slow	
	203 - 207	80 - 81	No function	
	208 - 217	82 - 85	Reset Fixture	
	218 - 227	86 - 89	No function	
	228 - 237	90 - 93	Lamp On (Power On)	
	238 - 247	94 - 97	No Function	
	248 - 255	98 - 100	Lamp Off (Power Off) **Note**: T > 5 seconds	
2			**Intensity**	
	0 - 255	0 - 100	0 – 100%	
3			**Cyan**	
	0 - 255	0 - 100	White -> Cyan	
4			**Magenta**	
	0 – 255	0 - 100	White -> Magenta	
5			**Yellow**	
	0 – 255	0 - 100	White -> Yellow	
6			**CTC**	
	0 – 255	0 - 100	White -> CTC	
7			**Rotating gobo 1 selection**	
	0 – 9	0 - 3	Open gobo	
	10 – 14	4 - 5	Gobo 1 – Indexing (set index on channel 8)	
	15 – 19	6 - 7	Gobo 2 – Indexing (set index on channel 8)	
	20 – 24	8 - 9	Gobo 3 – Indexing (set index on channel 8)	
	25 – 29	10 - 11	Gobo 4 – Indexing (set index on channel 8)	
	30 – 34	12 - 13	Gobo 5 – Indexing (set index on channel 8)	
	35 – 39	14 - 15	Gobo 1 – Cont. Rotation (set dir/speed on channel 8)	
	40 – 44	16 - 17	Gobo 2 – Cont. Rotation (set dir/speed on channel 8)	
	45 – 49	18 - 19	Gobo 3 – Cont. Rotation (set dir/speed on channel 8)	
	50 – 54	20 - 21	Gobo 4 – Cont. Rotation (set dir/speed on channel 8)	
	55 – 59	22 - 23	Gobo 5 – Cont. Rotation (set dir/speed on channel 8)	
			Gobo shake (indexing)	
	60 – 74	24 - 29	Gobo 1 slow -> fast	
	75 – 89	30 - 35	Gobo 2 slow -> fast	
	90 – 104	36 - 41	Gobo 3 slow -> fast	
	105 – 119	42 - 46	Gobo 4 slow -> fast	
	120 – 134	47 - 52	Gobo 5 slow -> fast	
			Gobo shake (continuous gobo rotation)	
	135 – 149	53 - 58	Gobo 1 slow -> fast	
	150 – 164	59 - 64	Gobo 2 slow -> fast	
	165 – 179	65 - 70	Gobo 3 slow -> fast	
	180 – 194	71 - 67	Gobo 4 slow -> fast	
	195 – 209	77 - 82	Gobo 5 slow -> fast	
			Gobo wheel continuous rotation (continuous gobo rotation)	
	210 – 232	83 - 91	CW slow -> fast	
	233 – 255	92 - 100	CCW fast -> slow	

Table 3: 16-bit DMX protocol

DMX channel	Value	Percent	Function	Start code = 0
8	0 – 255	0 - 100	**Rotating gobo 1 index coarse, MSB** (Set gobo selection on channel 7) Index min. -> max	
	0 – 2 3 – 127 128 – 252 253 – 255	0 1 - 50 51 - 99 100	**Rotating gobo 1 cont. rotation** (Set gobo selection on channel 7) Static CCW slow -> fast CW fast -> slow Static	
9	0 – 255	0 - 100	**Rotating gobo 1 index fine, LSB** (Set gobo selection on channel 7) Index min. -> max	
	0 – 255	0 - 100	**Rotating gobo 1 cont. rotation** (Set gobo selection on channel 7) No function	
10	0 – 9 10 – 19 20 – 29 30 – 39 40 – 49 50 – 139 140 – 229 230 – 235	0 - 3 4 - 7 8 - 11 12 - 15 16 - 19 20 - 54 55 - 89 90 - 92	**Gobo Animation wheel position** No Effect Vertical position – Indexing (set index on channel 10) Horizontal position – Indexing (set index on channel 10) Vertical position – Cont. Rotation (set dir/speed on channel 10) Horizontal position – Cont. Rotation (set dir/speed on channel 10) Animation wheel scroll position (Vertical -> Horizontal) – Indexing (set index on channel 11) Animation wheel scroll position (Horizontal -> Vertical) – Cont. Rot. (set dir/speed on channel 11) No Effect	
	236 – 239 240 – 243 244 – 247 248 – 251 252 – 255	93 94 - 95 96 97 - 98 99 - 100	**Gobo Animation MACROS** Macro 1 Macro 2 Macro 3 Macro 4 Macro 5	
11	0 – 255	0 - 100	**Gobo Animation wheel index** (Set position on channel 10) Index min. -> max	
	0 – 2 3 – 127 128 – 252 253 – 255	0 1 - 50 51 - 99 100	**Gobo Animation wheel cont. rotation** (Set position on channel 10) Static CCW slow -> fast CW fast -> slow Static	
12	0 1 – 234 235 – 242 243 – 250 251 – 255	0 1 - 91 92 - 95 96 - 98 99 - 100	**Effect selection** Open Variable Frost min. -> max. Effect 1 Effect 2 Open	
13	0 – 199 200 – 215 216 – 229 230 – 243 244 – 246 247 – 249 250 – 252 253 – 255	0 - 77 78 - 84 85 - 89 90 - 94 95 - 96 97 98 - 99 100	**Iris** Open - > close Close Pulse opening fast - > slow Pulse closing fast - > slow Random pulse opening fast Random pulse opening slow Random pulse closing fast Random pulse closing slow	
14	0 – 2 3 – 255	0 - 1 2 - 100	**Framing MACRO functions** No Macro Reserved for MACROs	
15	0 - 255	0 - 100	**Focus** Focus far - > near	
16	0 – 255	0 - 1000	**Zoom** Zoom wide -> narrow	
17	0 – 255	0 - 100	**Framing shutter 1** Out -> In	
18	0 – 126 127 - 128 129 – 255	0 50 100	**Framing shutter 1** Angle – Parallel Angle +	

Table 3: 16-bit DMX protocol

DMX channel	Value	Percent	Function	Start code = 0
19	0 – 255	0 - 100	**Framing shutter 2** Out -> In	
20	0 – 126 127-128 129 – 255	0 50 100	**Framing shutter 2** Angle – Parallel Angle +	
21	0 – 255	0 - 100	**Framing shutter 3** Out -> In	
22	0 – 126 127 - 128 129 – 255	0 50 100	**Framing shutter 3** Angle – Parallel Angle +	
23	0 – 255		**Framing shutter 4** Out -> In	
24	0 – 126 127 - 128 129 – 255	0 50 100	**Framing shutter 4** Angle – Parallel Angle +	
25	0 – 255	0 - 100	**Rotate framing shutters** Right - > Center -> Left	
26	0 127 255	0 50 100	**Pan coarse** Max Left Neutral Max Right	
27	0 127 255	0 50 100	**Pan fine** Max Left Neutral Max Right	
28	0 127 255	0 50 100	**Tilt coarse** Max Up Neutral Max Down	
29	0 127 255	0 50 100	**Tilt fine** Max Up Neutral Max Down	
30	0 - 2 3 – 236 237 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255	0 - 1 2 - 92 93 94 95 96 - 97 98 99 - 100	**Speed: Pan/Tilt Movement** Tracking Speed Fast -> Slow Tracking (Slow speed - Overriding the PTSP menu setting) Tracking (Normal speed - Overriding the PTSP menu setting) Tracking (Fast speed - Overriding the PTSP menu setting) Fan speed (Regulation, min. noise level – Overriding the FAN menu setting) Fan speed (Full speed, max. cooling – Overriding the FAN menu setting) Blackout while moving	
31	0 – 2 3 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255 0 – 2 3 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255	0 1 - 93 94 - 95 96 97 - 98 99 100 0 1 - 93 94 - 95 96 97 - 98 99 100	**Speed: Dimmer, Cyan, Magenta, Yellow, CTC, Effect, Iris, Focus, Zoom** Tracking Speed Fast -> Slow Tracking (Studio mode disabled – Overriding the MOdE menu setting) Tracking (Studio mode enabled – Overriding the MOdE menu setting) Tracking (Shortcuts disabled - Overriding the SCUT menu setting) Tracking (Shortcuts enabled - Overriding the SCUT menu setting) Fast Speed **Speed: Gobo 1, Framing, Animation wheel pos., Animation wheel rot.** Tracking Speed Fast -> Slow Tracking (Studio mode disabled – Overriding the MOdE menu setting) Tracking (Studio mode enabled – Overriding the MOdE menu setting) Tracking (Shortcuts disabled - Overriding the SCUT menu setting) Tracking (Shortcuts enabled - Overriding the SCUT menu setting) Blackout while moving	

Table 3: 16-bit DMX protocol

8-bit protocol

DMX channel	Value	Percent	Function Start code = 0
1			**Shutter, Strobe, Reset, Lamp On/Off**
	0 - 19	0 - 7	Shutter Closed (lamp reduced to 700 W (E-ballast) after 10 sec.)
	20 - 49	8 - 19	No function (Shutter Open)
	50 - 72	20 - 28	Strobe on fast->slow
	73 - 79	29 - 31	Shutter open, lamp reduced to 700 W (E-ballast)
	80 - 99	32 - 39	Pulse opening fast ->slow
	100 - 119	40 - 47	Pulse closing fast ->slow
	120 - 127	48 - 50	No function
	128 - 147	51 - 57	Random Strobe Fast
	148 - 167	58 - 65	Random Strobe Medium
	168 - 187	66 - 73	Random Strobe Slow
	188 - 190	74 - 74	No function
	191 - 193	75	Random pulse opening fast
	194 - 196	76	Random pulse opening slow
	197 - 199	77	Random pulse closing fast
	200 - 202	78 - 79	Random pulse closing slow
	203 - 207	80 - 81	No function
	208 - 217	82 - 85	Reset Fixture
	218 - 227	86 - 89	No function
	228 - 237	90 - 93	Lamp On (Power On)
	238 - 247	94 - 97	No Function
	248 - 255	98 - 100	Lamp Off (Power Off) **Note**: T > 5 seconds
2	0 - 255	0 - 100	**Intensity** 0 – 100%
3	0 - 255	0 - 100	**Cyan** White -> Cyan
4	0 – 255	0 - 100	**Magenta** White -> Magenta
5	0 – 255	0 - 100	**Yellow** White -> Yellow
6	0 – 255	0 - 100	**CTC** White -> CTC
7			**Rotating gobo 1 selection**
	0 – 9	0 - 3	Open gobo
	10 – 14	4 - 5	Gobo 1 – Indexing (set index on channel 8)
	15 – 19	6 - 7	Gobo 2 – Indexing (set index on channel 8)
	20 – 24	8 - 9	Gobo 3 – Indexing (set index on channel 8)
	25 – 29	10 - 11	Gobo 4 – Indexing (set index on channel 8)
	30 – 34	12 - 13	Gobo 5 – Indexing (set index on channel 8)
	35 – 39	14 - 15	Gobo 1 – Cont. Rotation (set dir/speed on channel 8)
	40 – 44	16 - 17	Gobo 2 – Cont. Rotation (set dir/speed on channel 8)
	45 – 49	18 - 19	Gobo 3 – Cont. Rotation (set dir/speed on channel 8)
	50 – 54	20 - 21	Gobo 4 – Cont. Rotation (set dir/speed on channel 8)
	55 – 59	22 - 23	Gobo 5 – Cont. Rotation (set dir/speed on channel 8)
			Gobo shake (indexing)
	60 – 74	24 - 29	Gobo 1 slow –> fast
	75 – 89	30 - 35	Gobo 2 slow –> fast
	90 – 104	36 - 41	Gobo 3 slow -> fast
	105 – 119	42 - 46	Gobo 4 slow -> fast
	120 – 134	47 - 52	Gobo 5 slow -> fast
			Gobo shake (continuous gobo rotation)
	135 – 149	53 - 58	Gobo 1 slow -> fast
	150 – 164	59 - 64	Gobo 2 slow -> fast
	165 – 179	65 - 70	Gobo 3 slow -> fast
	180 – 194	71 - 67	Gobo 4 slow -> fast
	195 – 209	77 - 82	Gobo 5 slow -> fast
			Gobo wheel continuous rotation (continuous gobo rotation)
	210 – 232	83 - 91	CW slow -> fast
	233 – 255	92 - 100	CCW fast -> slow

Table 4: 8-bit DMX protocol

DMX channel	Value	Percent	Function	Start code = 0
8	0 – 255	0 - 100	**Rotating gobo index** (Set gobo selection on channel 6) Index min. -> max	
	0 – 2 3 – 127 128 – 252 253 – 255	0 - 1 2 - 50 51 - 98 99 - 100	**Rotating gobo cont. rotation** (Set gobo selection on channel 6) Static CCW slow -> fast CW fast -> slow Static	
9	0 – 9 10 – 19 20 – 29 30 – 39 40 – 49 50 – 139 140 – 229 230 – 235	0 - 3 4 - 7 8 - 11 12 - 15 16 - 19 20 - 54 55 - 89 90 - 92	**Gobo Animation wheel position** No Effect Vertical position – Indexing (set index on channel 10) Horizontal position – Indexing (set index on channel 10) Vertical position – Cont. Rotation (set dir/speed on channel 10) Horizontal position – Cont. Rotation (set dir/speed on channel 10) Animation wheel scroll position (Vertical -> Horizontal) – Indexing (set index on channel 10) Animation wheel scroll position (Horizontal -> Vertical) – Cont. Rot. (set dir/speed on channel 10) No Effect	
	236 – 239 240 – 243 244 – 247 248 – 251 252 – 255	93 94 - 95 96 97 - 98 99 - 100	**Gobo Animation MACROS** Macro 1 Macro 2 Macro 3 Macro 4 Macro 5	
10	0 – 255	0 - 100	**Gobo Animation wheel index** (Set position on channel 9) Index min. -> max	
	0 – 2 3 – 127 128 – 252 253 – 255	0 - 1 2 - 50 51 - 98 99 - 100	**Gobo Animation wheel cont. rotation** (Set position on channel 9) Static CCW slow -> fast CW fast -> slow Static	
11	0 1 – 234 235 – 242 243 – 250 251 – 255	0 1 - 91 92 - 94 95 - 98 99 - 100	**Effect selection** Open Variable Frost min. -> max. Effect 1 Effect 2 Open	
12	0 – 199 200 – 215 216 – 229 230 – 243 244 – 246 247 – 249 250 – 252 253 – 255	0 - 78 79 - 84 85 - 89 90 - 95 96 97 98 99 - 100	**Iris** Open - > close Close Pulse opening fast - > slow Pulse closing fast - > slow Random pulse opening fast Random pulse opening slow Random pulse closing fast Random pulse closing slow	
13	0 – 2 3 – 255	0 - 1 2 - 100	**Framing MACRO functions** No Macro Reserved for MACROs	
14	0 – 255	0 - 100	**Focus** Focus far - > near	
15	0 – 255	0 - 100	**Zoom** Zoom wide -> narrow	
16	0 – 255	0 - 100	**Framing shutter 1** Out -> In	
17	0 – 126 127-128 129 – 255	0 50 100	**Framing shutter 1** Angle – Parallel Angle +	
18	0 – 255	0 - 100	**Framing shutter 2** Out -> In	
19	0 – 126 127-128 129 – 255	0 50 100	**Framing shutter 2** Angle – Parallel Angle +	

Table 4: 8-bit DMX protocol

DMX channel	Value	Percent	Function	Start code = 0
20	0 – 255	0 - 100	**Framing shutter 3** Out -> In	
21	0 – 126 127-128 129 – 255	0 50 100	**Framing shutter 3** Angle – Parallel Angle +	
22	0 – 255	0 - 100	**Framing shutter 4** Out -> In	
23	0 – 126 127-128 129 – 255	0 50 100	**Framing shutter 4** Angle – Parallel Angle +	
24	0 - 255	0 - 100	**Rotate Framing Shutters** Right - > Center -> Left	
25	0 127 255	0 50 100	**Pan** Max Left Neutral Max Right	
26	0 127 255	0 50 100	**Tilt** Max Up Neutral Max Down	
27	0 - 2 3 – 236 237 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255	0 - 1 2 - 92 93 94 - 95 96 97 98 99 - 100	**Speed: Pan/Tilt Movement** Tracking Speed Fast -> Slow Tracking (Slow speed - Overriding the PTSP menu setting) Tracking (Normal speed - Overriding the PTSP menu setting) Tracking (Fast speed - Overriding the PTSP menu setting) Fan speed (Regulation, min. noise level – Overriding the FAN menu setting) Fan speed (Full speed, max. cooling – Overriding the FAN menu setting) Blackout while moving	
28	0 – 2 3 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255 0 – 2 3 – 239 240 – 242 243 – 245 246 – 248 249 – 251 252 – 255	0 - 1 2 - 93 94 - 95 96 97 98 99 - 100 0 - 1 2 - 93 94 - 95 96 97 98 99 - 100	**Speed: Dimmer, Cyan, Magenta, Yellow, CTC, Effect, Iris, Focus, Zoom** Tracking Speed Fast -> Slow Tracking (Studio mode disabled – Overriding the MOdE menu setting) Tracking (Studio mode enabled – Overriding the MOdE menu setting) Tracking (Shortcuts disabled - Overriding the SCUT menu setting) Tracking (Shortcuts enabled - Overriding the SCUT menu setting) Fast Speed **Speed: Gobo 1, Framing, Animation wheel pos., Animation wheel rot.** Tracking Speed Fast -> Slow Tracking (Studio mode disabled – Overriding the MOdE menu setting) Tracking (Studio mode enabled – Overriding the MOdE menu setting) Tracking (Shortcuts disabled - Overriding the SCUT menu setting) Tracking (Shortcuts enabled - Overriding the SCUT menu setting) Blackout while moving	

Table 4: 8-bit DMX protocol