

DMX protocol

Robin Cuete - DMX protocol			
Version 1.3			
Channel	DMX Value	Function	Type of control
1		Pan	
	0 - 255	Pan movement by 540° (128=default)	proportional
2		Pan Fine	
	0 - 255	Fine control of pan movement (0=default)	proportional
3		Tilt	
	0 - 255	Tilt movement by 270° (128=default)	proportional
4		Tilt fine	
	0 - 255	Fine control of tilt movement (0=default)	proportional
5		Pan/Tilt speed , Pan/Tilt time	
	0	Standard mode (0=default)	step
	1	Max. Speed Mode	step
		Pan/Tilt speed mode	
	2 - 255	Speed from max. to min.	proportional
		Pan/Tilt time mode	
	2 - 255	Time from 0.2 s to 25.5 sec.	proportional
6		Power/Special functions	
	0 - 19	Reserved (0=default)	
		<i>To activate following functions, stop in DMX value for at least 3 s and shutter must be closed at least 3 sec. („Shutter,Strobe“ channel 27 must be at range: 0-31 DMX). Corresponding menu items are temporarily overridden.</i>	
	20-24	Display On	step
	25-29	Display Off	step
	30-44	Reserved	
	45-49	Dimmer curve: Super square law	step
	50-54	Dimmer curve: Square law	step
	55-59	Dimmer curve: Linear	step
	60-64	Fans mode: Auto	step
	65-69	Fans mode: High	step
	70-74	Fans mode: Quiet	step
	75-89	Reserved	
	90 - 94	Pan/Tilt speed mode	step
	95-99	Pan/Tilt time mode	step
	100 - 104	Blackout while pan/tilt moving	step
	105 -109	Disabled blackout while pan/tilt moving	step
	110-114	Blackout while colour wheel moving	step
	115 -119	Disabled blackout while colour wheel moving	step
	120-124	Blackout while gobo wheels moving: On	step
125-129	Disabled blackout while gobo wheels moving: Off	step	
	<i>To activate following functions, stop in DMX value for at least 3 seconds.</i>		
130 - 139	Fixture reset (except pan/tilt)	step	
140 - 149	Pan/Tilt reset	step	
150 - 159	Colour system reset	step	
160 - 169	Gobo wheels reset	step	
170 - 179	Reserved		

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Channel	DMX Value	Function	Type of control
	180 - 189	Focus/frost/prism reset	step
	190 - 199	Reserved	
	200 - 209	Total fixture reset (including pan/tilt)	step
	210 - 218	Reserved	
		The following three commands define way of transition from gobo rotation to gobo indexing:	
	219 - 220	Gobo indexing: Maximum speed and shortcut	step
	221 - 222	Goboindexing: Follow speed and direction	step
	223 - 224	Gobo indexing: Maximum speed and follow direction	step
		The following RoboSpot related commands are only applicable when the RoboSpot is connected:	
	225 - 229	RoboSpot enabled	step
	230 - 234	RoboSpot disabled - except handle faders and pan/tilt	step
	235 - 239	RoboSpot fully disabled	step
	240 - 255	Reserved	
7		LED frequency selection	
		Factory display menu setting: 600Hz	
		<i>Select PWM output frequency of LEDs. Selected PWM frequency can be fine adjusted in 127 steps up/down around selected PWM frequency on the channel below. Corresponding menu item is temporarily overridden.</i>	
	0-4	PWM frequency from Display menu (fixture utilizes PWM frequency set in the display menu item Frequency Setup).	step
	5-9	300 Hz	step
	10-14	600 Hz (10=default)	step
	15-19	1200 Hz	step
	20-24	2400 Hz	step
	25-29	High	step
	30-255	Reserved (fixture utilizes PWM frequency set in the display menu item Frequency Setup).	
8		LED frequency fine adjusting	
		Factory display menu setting: 600Hz	
		<i>Select desired PWM output frequency of LEDs on the channel above.</i>	
	0-1	Selected LED Frequency	step
	2	LED Frequency (step -126)	step
	3	LED Frequency (step -125)	step
	4	LED Frequency (step -124)	step
	:		
	125	LED Frequency (step -3)	step
	126	LED Frequency (step -2)	step
	127	LED Frequency (step -1)	step
	128	Selected LED Frequency (128=default)	step
	129	LED Frequency (step +1)	step
	130	LED Frequency (step +2)	step
	131	LED Frequency (step +3)	step
	:		
	252	LED Frequency (step +124)	step
	253	LED Frequency (step +125)	step
	254	LED Frequency (step +126)	step

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Channel	DMX Value	Function	Type of control
	255	Selected LED Frequency	step
9		Max. light intensity indication and setting	
	0-10	No function (0=default)	
	11-20	Indication of drop of max. light intensity	step
		<i>A drop of max. light intensity of the fixture (compared to its original intensity) is indicated by a corresponding colour output: 0-5%, (WHITE /new LED module/) 6-10% (RED) 11-15% (GREEN) 16-20% (BLUE) 21-25% (CYAN) 26-30% (MAGENTA) 31-35% (YELLOW) 36-40% (ORANGE) Pan/tilt is set at 128 DMX (50%), Dimmer is open at 255 DMX (100%).</i>	
		<i>To set a drop of max. light intensity (compared to original light intensity), stay at DMX value for at least 3 sec. and shutter must be closed at least 3 sec. (Channel „Shutter/ Strobe“ 30 must be at range: 0-31 DMX). Corresponding menu items are permanently overwritten.</i>	
	21-30	Set drop by 6-10% (RED)	step
	31-40	Set drop by 11-15% (GREEN)	step
	41-50	Drop by 16-20% (BLUE)	step
	51-60	Set drop by 21-25% (CYAN)	step
	61-70	Set drop by 26-30% (MAGENTA)	step
	71-80	Set drop by 31-35% (YELLOW)	step
	81-90	Set drop by 36-40% (ORANGE)	step
	91-100	Original intensity (WHITE)	step
	101-255	Reserved	
10		Colour wheel	
		Continual positioning	
	0	Open/white	proportional
	9	Deep Red	proportional
	18	Deep Blue	proportional
	27	Yellow	proportional
	37	Light green	proportional
	46	Magenta	proportional
	55	Lavender	proportional
	64	Pink	proportional
	73	Dark green	proportional
	82	CTO 2700K	proportional
	91	Blue	proportional
	101	Orange	proportional
	110	CTO 3200K	proportional
	119	UV (Kongo blue)	proportional
	128-129	White	step
		Positioning	

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Channel	DMX Value	Function	Type of control
	130-134	Deep Red	step
	135-138	Deep Blue	step
	139-143	Yellow	step
	144-147	Light green	step
	148-152	Magenta	step
	153-157	Lavender	step
	158-161	Pink	step
	162-166	Dark green	step
	167-171	CTO 2700K	step
	172-176	Blue	step
	177-180	Orange	step
	181-185	CTO 3200K	step
	186-189	UV (Kongo blue)	step
	190 - 215	Forwards rainbow effect from fast to slow	proportional
	216 - 217	No rotation	step
	218 - 243	Backwards rainbow effect from slow to fast	proportional
	244 - 249	Random colour selection by audio control (Set microphone sensitivity in menu „Personality“)	step
	250 - 255	Auto random colour selection from fast to slow	proportional
11		Colour wheel - fine positioning	
	0 - 255	Fine positioning (0=default)	proportional
12		Cyan	
	0 - 255	Cyan from min. saturation --> full cyan (0=default)	proportional
13		Magenta	
	0 - 255	Magenta from min. saturation --> full magenta (0=default)	proportional
14		Yellow	
	0 - 255	Yellow from min. saturation --> full yellow (0=default)	proportional
15		Virtual colour wheel	
	0	No function (0=default)	step
	1-2	Filter 4 (Medium Bastard Amber)	step
	3-4	Filter 10 (Medium Yellow)	step
	5-6	Filter 19 (Fire)	step
	7-8	Filter 26 (Bright Red)	step
	9-10	Filter 58 (Lavender)	step
	11-12	Filter 68 (Sky Blue)	step
	13-14	Filter 71 (Tokyo Blue)	step
	15-16	Filter 79 (Just Blue)	step
	17-18	Filter 88 (Lime Green)	step
	19-20	Filter 90 (Dark Yellow Green)	step
	21-22	Filter 100 (Spring Yellow)	step
	23-24	Filter 101 (Yellow)	step
	25-26	Filter 102 (Light Amber)	step
	27-28	Filter 103 (Straw)	step
	29-30	Filter 104 (Deep Amber)	step
	31-32	Filter 105 (Orange)	step
	33-34	Filter 106 (Primary Red)	step
	35-36	Filter 111 (Dark Pink)	step
	37-38	Filter 115 (Peacock Blue)	step

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Channel	DMX Value	Function	Type of control
	39-40	Filter 116 (Medium Blue-Green)	step
	41-42	Filter 117 (Steel Blue)	step
	43-44	Filter 118 (Light Blue)	step
	45-46	Filter 119 (Dark Blue)	step
	47-48	Filter 120 (Deep Blue)	step
	49-50	Filter 121 (Filter Green)	step
	51-52	Filter 128 (Bright Pink)	step
	53-54	Filter 131 (Marine Blue)	step
	55-56	Filter 132 (Medium Blue)	step
	57-58	Filter 134 (Golden Amber)	step
	59-60	Filter 135 (Deep Golden Amber)	step
	61-62	Filter 136 (Pale Lavender)	step
	63-64	Filter 137 (Special Lavender)	step
	65-66	Filter 138 (Pale Green)	step
	67-68	Filter 139 (Primary Green)	step
	69-70	Filter 141 (Bright Blue)	step
	71-72	Filter 147 (Apricot)	step
	73-74	Filter 148 (Bright Rose)	step
	75-76	Filter 152 (Pale Gold)	step
	77-78	Filter 154 (Pale Rose)	step
	79-80	Filter 157 (Pink)	step
	81-82	Filter 158 (Deep Orange)	step
	83-84	Filter 162 (Bastard Amber)	step
	85-86	Filter 164 (Flame Red)	step
	87-88	Filter 165 (Daylight Blue)	step
	89-90	Filter 169 (Lilac Tint)	step
	91-92	Filter 170 (Deep Lavender)	step
	93-94	Filter 172 (Lagoon Blue)	step
	95-96	Filter 179 (Chrome Orange)	step
	97-98	Filter 180 (Dark Lavender)	step
	99-100	Filter 181 (Congo Blue)	step
	101-102	Filter 197 (Alice Blue)	step
	103-104	Filter 201 (Full C.T. Blue)	step
	105-106	Filter 202 (Half C.T. Blue)	step
	107-108	Filter 203 (Quarter C.T. Blue)	step
	109-110	Filter 204 (Full C.T. Orange)	step
	111-112	Filter 205 (Half C.T. Orange)	step
	113-114	Filter 206 (Quarter C.T. Orange)	step
	115-116	Filter 247 (Filter Minus Green)	step
	117-118	Filter 248 (Half Minus Green)	step
	119-120	Filter 281 (Three Quarter C.T. Blue)	step
	121-122	Filter 285 (Three Quarter C.T. Orange)	step
	123-124	Filter 352 (Glacier Blue)	step
	125-126	Filter 353 (Lighter Blue)	step
	127-128	Filter 715 (Cabana Blue)	step
	129-130	Filter 778 (Millennium Gold)	step
	131-132	Filter 793 (Vanity Fair)	step
	133-255	Reserved	

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Channel	DMX Value	Function	Type of control
16		CMY and Colour wheel time	
	0	Function is off (0=default)	step
	1 - 255	Time of CMY and Colour wheel movement (0.1sec-->25.5sec.)	proportional
17		Focus/Frost/Prism time	
	0	Function is off (0=default)	step
	1 - 255	Time of focus and frost movement (0.1 sec-->25.5 sec.)	proportional
	1-50	Time of prism movement (0.1 sec-->5 sec.)	proportional
18		Static gobo wheel	
	0-9	Open/hole	step
		<u>Positioning</u>	
	10-17	Gobo 1	step
	18-25	Gobo 2	step
	26-33	Gobo 3	step
	34-41	Gobo 4	step
	42-49	Gobo 5	step
	50-57	Gobo 6	step
	58-65	Beam reduser 1	step
	66-73	Beam reduser 2	step
	74-81	Beam reduser 3	step
	82-89	Beam reduser 4	step
		<u>Shaking gobos from slow to fast</u>	
	90-100	Gobo 1	proportional
	101-111	Gobo 2	proportional
	112-122	Gobo 3	proportional
	123-133	Gobo 4	proportional
	134-144	Gobo 5	proportional
	145-155	Gobo 6	proportional
	156-166	Beam reduser 1	proportional
	167-177	Beam reduser 2	proportional
	178-188	Beam reduser 3	proportional
	189-199	Beam reducer 4	proportional
	200-201	Open/hole	step
	202 - 222	Forwards gobo wheel rotation from fast to slow	proportional
	223 - 243	Backwards gobo wheel rotation from slow to fast	proportional
	244 - 249	Random gobo selection by audio control	step
		<i>(Set microphone sensitivity in menu „Personality“)</i>	
	250 - 255	Auto random gobo selection from fast to slow	proportional
19		Rotating gobo wheel	
		<i>Index - set indexing on channel 20</i>	
	0-4	Open/Hole (default)	step
	5-7	Gobo 1	step
	8-10	Gobo 2	step
	11-13	Gobo 3	step
	14-16	Gobo 4	step
	17-19	Gobo 5	step
	20-22	Gobo 6	step
	23-25	Gobo 7	step
26-28	Gobo 8	step	

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Channel	DMX Value	Function	Type of control
	29-31	Gobo 9	step
		<i>Rotation - set rotation on channel 20</i>	
	32-34	Gobo 1	step
	35-37	Gobo 2	step
	38-40	Gobo 3	step
	41-43	Gobo 4	step
	44-46	Gobo 5	step
	47-49	Gobo 6	step
	50-52	Gobo 7	step
	53-55	Gobo 8	step
	56-59	Gobo 9	step
		<u>Shaking gobos from slow to fast</u>	
		<i>Index - set indexing on channel 20</i>	
	60-67	Gobo 1	proportional
	68-75	Gobo 2	proportional
	76-83	Gobo 3	proportional
	84-91	Gobo 4	proportional
	92-99	Gobo 5	proportional
	100-107	Gobo 6	proportional
	108-115	Gobo 7	proportional
	116-123	Gobo 8	proportional
	124-129	Gobo 9	proportional
		<u>Shaking gobos from slow to fast</u>	
		<i>Rotation - set rotation on channel 20</i>	
	130-137	Gobo 1	proportional
	138-145	Gobo 2	proportional
	146-153	Gobo 3	proportional
	154-161	Gobo 4	proportional
	162-169	Gobo 5	proportional
	170-177	Gobo 6	proportional
	178-185	Gobo 7	proportional
	186-193	Gobo 8	proportional
	194-199	Gobo 9	proportional
	200 - 201	Open/hole	step
	202 - 222	Forwards gobo wheel rotation from fast to slow	proportional
	223 - 243	Backwards gobo wheel rotation from slow to fast	proportional
	244 - 249	Random gobo selection by audio control (Set microphone sensitivity in menu „Personality“)	step
	250 - 255	Auto random gobo selection from fast to slow	proportional
20		Rot. Gobo indexing/rotation	
		<i>Gobo indexing - set position on channel 19</i>	
	0 - 255	Gobo indexing (128=default)	proportional
		<i>Gobo rotation - set position on channel 19</i>	
	0	No rotation	step
	1 - 127	Forwards gobo rotation from fast to slow	proportional
	128	No rotation (128=default)	step
	129 - 255	Backwards gobo rotation from slow to fast	proportional
21		Rot. Gobo indexing/rotation - fine	

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Channel	DMX Value	Function	Type of control
	0-255	Fine indexing/rotation (0=default)	proportional
22		Prism	
		<i>Note: prism and frost cannot be inserted into light beam at the same time</i>	
	0 - 19	Open position/hole (0=default)	step
	20 - 127	8-facet rotating prism	step
		Prism/gobo macros	
		<i>The following channels are blocked: Rotating gobo wheel, Rot. Gobo indexing and rotation, Rot. Gobo wheel fine rotation</i>	
	128 - 135	Macro 1	step
	136 - 143	Macro 2	step
	144 - 151	Macro 3	step
	152 - 159	Macro 4	step
	160 - 167	Macro 5	step
	168 - 175	Macro 6	step
	176 - 183	Macro 7	step
	184 - 191	Macro 8	step
	192 - 199	Macro 9	step
	200 - 207	Macro 10	step
	208 - 215	Macro 11	step
	216 - 223	Macro 12	step
	224 - 231	Macro 13	step
	232 - 239	Macro 14	step
	240 - 247	Macro 15	step
	248 - 255	Macro 16	step
23		Prism rotation	
	0	No rotation	step
	1 - 127	Forwards rotation from fast to slow	proportional
	128	No rotation (128= default)	step
	129-255	Backwards rotation from slow to fast	proportional
24		Frost	
		<i>Note: prism and frost cannot be inserted into light beam at the same time</i>	
	0	Open (0=default)	step
	1 - 179	Frost from 0% to 100%	proportional
	180 - 189	100% frost	step
	190 - 211	Pulse closing from slow to fast	proportional
	212 - 233	Pulse opening from fast to slow	proportional
	234 - 255	Ramping from fast to slow	proportional
25		Focus	
	0 - 255	Continuous adjustment from far to near (128=default)	proportional
26		Focus - fine	
	0- 255	Fine focusing (0=default)	proportional
27		Shutter/ strobe	
	0 - 31	Shutter closed	step
	32 - 63	Shutter open (32=default)	step
	64 - 95	Strobe-effect from slow to fast	proportional
	96 - 127	Shutter open	step
	128 - 143	Opening pulse in sequences from slow to fast	proportional

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Channel	DMX Value	Function	Type of control
	144 - 159	Closing pulse in sequences from fast to slow	proportional
	160 - 191	Shutter open	proportional
	192 - 223	Random strobe-effect from slow to fast	proportional
	224 - 255	Shutter open	step
28		Dimmer intensity	
	0 - 255	Dimmer intensity from 0% to 100% (0=default)	proportional
29		Dimmer intensity - fine	
	0 - 255	Fine dimming (0=default)	proportional
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Robin Cuete - colours on Virtual Colour Wheel				
Colour name	Cyan (DMX)	Magenta (DMX)	Yellow (DMX)	Colour Wheel (DMX)
Filter 4 (Medium Bastard Amber)	0	140	175	0
Filter 10 (Medium Yellow)	0	120	223	0
Filter 19 (Fire)	0	236	0	177
Filter 24 (Scarlet)	137	255	0	134
Filter 58 (Lavender)	25	182	91	0
Filter 68 (Sky Blue)	184	152	0	0
Filter 71 (Tokyo Blue)	0	0	0	137
Filter 79 (Just Blue)	186	161	0	0
Filter 88 (Lime Green)	78	0	217	0
Filter 90 (Dark Yellow Green)	196	0	227	0
Filter 100 (Spring Yellow)	0	83	221	0
Filter 101 (Yellow)	0	122	221	0
Filter 102 (Light Amber)	0	115	189	0
Filter 103 (Straw)	0	104	185	0
Filter 104 (Deep Amber)	0	144	239	0
Filter 105 (Orange)	0	180	250	0
Filter 781 (Terry Red)	0	255	242	169
Filter 111 (Dark Pink)	0	177	179	0
Filter 115 (Peacock Blue)	238	0	194	0
Filter 505 (Sally Green)	251	0	198	0
Filter 117 (Steel Blue)	148	0	168	0
Filter 118 (Light Blue)	207	0	174	0
Filter 724 (Ocean Blue)	255	47	0	0
Filter 725 (Old Steel Blue)	255	98	0	0
Filter 121 (Filter Green)	158	0	255	0
Filter 128 (Bright Pink)	0	222	177	0
Filter 131 (Marine Blue)	198	0	143	0
Filter 132 (Medium Blue)	255	0	83	0
Filter 134 (Golden Amber)	0	175	255	0
Filter 135 (Deep Golden Amber)	0	214	255	0
Filter 136 (Pale Lavender)	0	170	97	0
Filter 137 (Special Lavender)	0	121	99	0
Filter 138 (Pale Green)	70	35	197	0
Filter 139 (Primary Green)	255	0	250	0
Filter 141 (Bright Blue)	231	0	130	0
Filter 147 (Apricot)	0	156	217	0
Filter 148 (Bright Rose)	0	224	209	0
Filter 152 (Pale Gold)	0	157	197	0
Filter 154 (Pale Rose)	0	146	173	0
Filter 157 (Pink)	0	204	211	0
Filter 158 (Deep Orange)	0	205	255	0
Filter 162 (Bastard Amber)	0	134	193	0
Filter 164 (Flame Red)	0	255	255	0
Filter 165 (Daylight Blue)	200	0	67	0
Filter 169 (Lilac Tint)	0	167	145	0
Filter 170 (Deep Lavender)	0	165	67	0

Colour name	Cyan (DMX)	Magenta (DMX)	Yellow (DMX)	Colour Wheel (DMX)
Filter 172 (Lagoon Blue)	214	0	149	0
Filter 179 (Chrome Orange)	0	159	236	0
Filter 180 (Dark Lavender)	141	155	0	0
Filter 181 (Congo Blue)	175	210	0	0
Filter 197 (Alice Blue)	234	138	0	0
Filter 201 (Full C.T. Blue)	169	0	128	0
Filter 202 (Half C.T. Blue)	141	0	92	0
Filter 203 (Quarter C.T. Blue)	114	0	130	0
Filter 204 (Full C.T. Orange)	0	172	255	0
Filter 205 (Half C.T. Orange)	0	140	199	0
Filter 206 (Quarter C.T. Orange)	0	137	152	0
Filter 247 (Filter Minus Green)	0	160	121	0
Filter 248 (Half Minus Green)	0	90	86	0
Filter 281 (Three Quarter C.T. Blue)	150	0	118	0
Filter 285 (Three Quarter C.T. Orange)	0	150	239	0
Filter 352 (Glacier Blue)	198	0	122	0
Filter 353 (Lighter Blue)	208	0	151	0
Filter 715 (Cabana Blue)	255	101	0	0
Filter 778 (Millennium Gold)	0	202	255	0
Filter 328 (Follies Pink)	0	225	148	0