

appendix a

DMX PROTOCOL

All features in the PAL are fully DMX implemented. When operating via DMX you can choose between the four modes listed in the table below. 'Tracking' mode means that speed of movement is determined by the slope (change in DMX value per time unit) generated by the DMX controller - the mirror is tracking this slope. When working in vector mode the speed is determined by a speed value set on a separate DMX channel. This channel also allows you to enable tracking mode instead. Tracking and Vector modes not only apply for mirror movement, but for all effects where the speed is variable.

DMX Mode	Mode 1	Mode 2	Mode 3	Mode 4
Pan / tilt resolution	8 bit	16 bit	8 bit	16 bit
control	Tracking		Tracking / Vector	
PAL 1200, PAL 1200 E	22 channels	24 channels	26 channels	
PAL 1200 FX	16 channels.	18 channels	20 channels	

Each DMX channel in the PAL is used to provide several different functions depending on where it is set within 0-255 increments. The functions are described in the DMX protocol listed on the following pages.

DMX channel PAL 1200 FX				DMX channel PAL 1200, PAL 1200 E				Value	Function
M1	M2	M3	M4	M1	M2	M3	M4		
1 Note: Lamp Off will only take effect if 'SPEC'/'LoFF' is set to 'On', or if 'SPEC'/'LoFF' set to 'OFF' and all Cyan, Magenta and Yellow flags set between 230 and 232.				1 (10 with 'dPr2' = On) Note: Lamp Off will only take effect if 'SPEC'/'LoFF' is set to 'On', or if 'SPEC'/'LoFF' set to 'OFF' and all Cyan, Magenta and Yellow flags set between 230 and 232.				0 - 49 50 - 177 178 - 187 188 - 197 198 - 207 208 - 217 218 - 227 228 - 237 238 - 247 248 - 255	Strobe, Fan, Reset Fixture, Lamp ON/OFF No function Strobe on (Fast → Slow) No function Fan Low No function Reset Fixture No function Lamp ON (Power ON) No function Lamp OFF (Power OFF)
2				2 (11 with 'dPr2' = 'On')				0 - 255	Intensity 0 → 100%
-				3 (1 with 'dPr2' = 'On')				0 - 255	Profile shutter 1a Open → Closed
-				4 (2 with 'dPr2' = 'On')				0 - 255	Profile shutter 1b Open → Closed
-				5 (3 with 'dPr2' = 'On')				0 - 255	Profile shutter 2a Open → Closed
-				6 (4 with 'dPr2' = 'On')				0 - 255	Profile shutter 2b Open → Closed
-				7 (5 with 'dPr2' = 'On')				0 - 255	Profile shutter 3a Open → Closed
-				8 (6 with 'dPr2' = 'On')				0 - 255	Profile shutter 3b Open → Closed
-				9 (7 with 'dPr2' = 'On')				0 - 255	Profile shutter 4a Open → Closed
-				10 (8 with 'dPr2' = 'On')				0 - 255	Profile shutter 4b Open → Closed
-				11 (9 with 'dPr2' = 'On')				0 - 255	Profile orientation 22.6° CCW → 22.4° CW (128 = Neutral)
3				12				0-255	Cyan White → Cyan
4				13				0-255	Magenta White → Magenta
5				14				0-255	Yellow White → Yellow

DMX channel PAL 1200 FX				DMX channel PAL 1200, PAL 1200 E				Value	Function
M1	M2	M3	M4	M1	M2	M3	M4		
6									Colors
								0	All positions (tracking) White
								33	Color 1
								66	Color 2
								99	Color 3
								132	Color 4
								167	Color5
								168 - 181	Fixed colors Color 5
								182 - 195	Color 4
								196 - 209	Color 3
								210 - 223	Color 2
								224 - 237	Color 1
								238 - 255	White
7								0 - 22	Rotating Gobo selection Open Gobo
								23 - 45	Gobo 1 - Indexed
								46 - 68	Gobo 2 - Indexed
								69 - 91	Gobo 3 - Fixed
								92 - 114	Gobo 4 - Indexed
								115 - 137	Gobo 5 - Indexed
								138 - 160	Gobo 5 - Rotation
								161 - 183	Gobo 4 - Rotation
								184 - 206	Gobo 3 - Fixed
								207 - 229	Gobo 2 - Rotation
								230 - 255	Gobo 1 - Rotation
8								0 - 126	Rotating Gobo Index Index CW
								127	Default Index
								128 - 255	Index CCW
								0 - 2	Gobo Rotation Static
								3 - 127	CCW fast → slow
								128 - 254	CW slow → fast
								253 - 255	Static
9								0 - 22	Rotating Effect selection Open
								23 - 45	Effect 1 - Indexed
								46 - 68	Effect 2 - Fixed
								69 - 91	Effect 3 - Indexed
								92 - 114	Effect 4 - Fixed
								115 - 137	Effect 5 - Indexed
								138 - 160	Effect 5 - Rotation
								161 - 183	Effect 4 - Fixed
								184 - 206	Effect 3 - Rotation
								207 - 229	Effect 2 - Fixed
								230 - 255	Effect 1 - Rotation

DMX channel PAL 1200 FX				DMX channel PAL 1200, PAL 1200 E					
M1	M2	M3	M4	M1	M2	M3	M4	Value	Function
10				-				0 - 126 127 128 - 255	Rotating Effect Index Index CW Default Index Index CCW
Note: Effect selection is pro- grammed on channel 8								0 - 2 3 - 127 128 - 254 253 - 255	Effect Rotation Static CCW fast → slow CW slow → fast Static
11				18				0 - 255	Focus Near → Far Focus
12				19				0 - 255	Zoom Wide → Narrow
13				-				0-255	Iris Open → Close
14				20				0 - 255	Variable Frost Full OFF → Full ON
15	-	15	-	21	-	21	-	0 - 255	Pan Max Left → Max Right (127 = Neutral)
16	-	16	-	22	-	22	-	0 - 255	Tilt Max Up → Max Down (127 = Neutral)
-	15	-	15	-	21	-	21	0 - 255	Pan MSB (Coarse) Max Left → Max Right (127 = Neutral)
-	16	-	16	-	22	-	22	0 - 255	Pan LSB (Fine) Max Left → Max Right (127 = Neutral)
-	17	-	17	-	23	-	23	0 - 255	Tilt MSB (Coarse) Max Up → Max Down (127 = Neutral)
-	18	-	18	-	24	-	24	0 - 255	Tilt LSB (Fine) Max Up → Max Down (127 = Neutral)
-	-	17	19	-	-	23	25	0 - 2 3 - 251 252 - 255	Speed Control: Pan and Tilt Tracking Speed Fast → Slow Blackout while moving
-	-	18	20	-	-	24	26	0 - 2 3 - 251 252 - 255	Speed Control: Cyan, Magenta, Yellow, Focus, Zoom, Frost, Dimmer, Profile Shutters Tracking Speed Fast → Slow Fast speed
-	-			-	-			0 - 2 3 - 251 252 - 255	Color, Gobo Indexing, Rotating Effect Indexing Tracking Speed Fast → Slow Blackout while moving
								0 - 251 252 - 255	Gobo Change, Effect Change Shutter open while moving Blackout while moving