

# DMX Channel Index

# FUSION

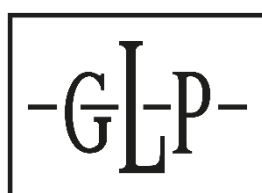
by GLP

## Exo Hybrid 40



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## Document revisions

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GLP® Fusion Exo Hybrid 40 DMX Channel Index

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# Table of Contents

1. DMX control modes overview.....	4
2. DMX control channel layout.....	5
Pan & Tilt.....	5
CMY Colormix.....	5
CTO Wheel.....	5
Color Wheel.....	6
Shutter.....	7
Intensity.....	7
Focus.....	8
Zoom.....	8
Frost.....	8
Prism 1 or 2.....	8
Prism 1 or 2 Index / Rotation / Swing.....	9
Effect Wheel.....	9
Effect Wheel rotation.....	10
Gobo wheel 1 (rotating).....	10
Gobo Wheel 1 index / rotation / swing.....	11
Gobo Wheel 2 (static).....	12
FX Macro Select.....	13
FX Macro Speed.....	13
Special / Control.....	14

## 1. DMX control modes overview

The Fusion Exo Hybrid 40 has only one DMX control mode and the channels are allocated as follows:

CH	Normal (Default)
1	Pan coarse
2	Pan fine
3	Tilt coarse
4	Tilt Fine
5	Intensity coarse
6	Intensity fine
7	Shutter
8	Special / Control
9	Zoom
10	Focus coarse
11	Focus fine
12	Color Wheel
13	CTO wheel
14	CMY mix: Cyan
15	CMY mix: Magenta
16	CMY mix: Yellow
17	Gobo wheel 1 Select
18	Gobo wheel 1 index /rotation/swing coarse
19	Gobo wheel 1 index /rotation/swing fine
20	Gobo wheel 2 Select
21	Effect wheel Select
22	Effect wheel Speed
23	Frost
24	Prism 01 Select
25	Prism 01 index/rotation/swing
26	Prism 02 Select
27	Prism 02 : index/rotation/swing

## 2. DMX control channel layout

In the following DMX channel layout tables:

- The default/home value to be sent by a control console is normally 0. If a different value should be sent this is shown at the end of the table

### ***Pan & Tilt***

Tilt	DMX range		fade	Note
Pan coarse	0	65535	fade	-270° to +270° (16 bit)
Pan fine				
Tilt coarse	0	65535	fade	-135° to +135°
Tilt fine				

Default/Home value: 32768

### ***CMY Colormix***

Colors	DMX range		fade	Note
Cyan	0	255	fade	0..100%
Magenta	0	255	fade	0..100%
Yellow	0	255	fade	0..100%

Default/Home value: 255

### ***CTO Wheel***

CTC	DMX range		fade	Note
Open	0	9	Snap	Open (6500K)
6500K → 2500K	10	254	fade	linear

## Color Wheel

Color	DMX range	fade	Note	
Open	0	9	Snap	Open
<i>Correction Filter</i>				
Color 01	10	12	Snap	CTO Wheel Position CTO-W 1 CRI-Filter : 6500K / CRI >85
Color 02	13	15	Snap	CTO Wheel Position CTO-W 2 CRI-Filter : 5600K / CRI >85
Color 03	16	18	Snap	CTO Wheel Position CTO-W 3 CRI-Filter : 3200K / CRI >85
Color 04	19	21	Snap	CTO Wheel Position CTO-W 4* 100% CTO at ~2500K with CRI >80
<i>Color Filter</i>				
Open	22	24	Snap	Open
Split Color 01	25	27	Snap	Open/CW 1
Full Color 01	28	30	Snap	Cyan Wheel Position CW 1
Split Color 02	31	33	Snap	CW 1 / CW 2
Full Color 02	34	36	Snap	Cyan Wheel Position CW 2
Split Color 03	37	39	Snap	CW 2 / CW 3
Full Color 03	40	42	Snap	Cyan Wheel Position CW 3
Split Color 04	43	45	Snap	CW 3 / CW 4*
Full Color 04	46	48	Snap	Cyan Wheel Position CW 4*
Open	49	51	Snap	Open
Split Color 05	52	54	Snap	Open / M-01
Full Color 05	55	57	Snap	Magenta Wheel Position MW 1
Split Color 06	58	60	Snap	MW 1 / MW 2
Full Color 06	61	63	Snap	Magenta Wheel Position MW 2
Split Color 07	64	66	Snap	MW 2 / MW 3
Full Color 07	67	69	Snap	Magenta Wheel Position MW 3
Split Color 08	70	72	Snap	MW 3 / MW 4*
Full Color 08	73	75	Snap	Magenta Wheel Position MW 4*
Open	76	78	Snap	Open
Split Color 09	79	81	Snap	YW 0* / YW 1
Full Color 09	82	84	Snap	Yellow Wheel Position YW 1
Split Color 10	85	87	Snap	YW 1 / YW 2
Full Color 10	88	90	Snap	Yellow Wheel Position YW 2
Split Color 11	91	93	Snap	YW 2 / YW 3
Full Color 11	94	96	Snap	Yellow Wheel Position YW 3
Split Color 12	97	99	Snap	YW 3 / YW 4*
Full Color 12	100	102	Snap	Yellow Wheel Position YW 4*
<i>Color Wheel Random Fix and Split colors:</i>				
Open	103	105	Snap	Open
Random colors → slow	106	106	fade	Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 30 bpm
Random colors slow → fast	107	174		Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 31..160 bpm
Random colors → fast	175	175		Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 160 bpm
Random colors → Stop	176	178	Snap	Stop at current color
<i>Color Wheel Random Fix colors:</i>				
Open	179	181	snap	Open
Random Fix colors → slow	182	182	fade	Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 30 bpm

Color	DMX range		fade	Note
Random Fix colors slow → fast	183	251		Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 31..160 bpm
Random Fix colors → fast	252	252		Snap jump between colors from C-01..COX & M-01..OX & Y-01..OX ( → not CTO Colors ) / 160 bpm
Random Fix colors → Stop	253	255	snap	Stop at current color

## Shutter

Shutter	DMX range		fade	Note
Closed	0	4	snap	blackout
Single Flash	5	9	fade	One Single Flash if value change within this range (005..009)
Open	10	12	snap	Open
Pulse (slow → fast)	13	39	fade	Synchronized Pulse (Fade-Up/Fade-Down)
Open	40	42	snap	Open
Pulse Open (slow-fast)	43	69	fade	Synchronized Pulse Open (Fade-Up/Snap Off)
Open	70	72	snap	Open
Pulse Close (slow-fast)	73	99	fade	Synchronized Pulse Close (Snap-On/Fade-Down)
Open	100	102	snap	
Double-Flash (slow > fast)	103	129	fade	Synchronized Double Flash slow 1Hz → fast 20Hz
Open	130	132	snap	
Strobe Rnd (slow → fast)	133	189	fade	Random Strobe slow → fast
Open	190	192	snap	
Strobe Sync (slow → fast)	193	250	fade	Synchronized Strobe slow 1Hz → fast 20Hz
Open	251	255	snap	Continuously on

Default/Home value: 255

## Intensity

Intensity	DMX range		fade	Note
Intensity coarse	0	65535	fade	Intensity 0..100%
Intensity fine				

## Focus

Focus	DMX range		fade	Note
Focus coarse	0	65535	fade	Near to far
Focus fine				

Note: Focus Tracking feature must also be disabled to set manual focus

## Zoom

Zoom	DMX range		fade	Note
Beam Angle	0	255	fade	narrow [000] ... wide [255]

## Frost

Frost	DMX range		fade	Note
Off	0	9	Snap	Open
Frost light .. medium	10	254	fade	0 .. 100% frost

## Prism 1 or 2

Prism	DMX range		fade	Note
Off	0	9	snap	open - no prism
Prism Index	10	84	snap	Prism in using Index mode
Off	85	94	snap	open - no prism
Prism Rotation	95	169	snap	Prism in using Rotation mode
Off	170	179	snap	open - no prism
Prism Swing	180	255	snap	Prism in using Swing mode



### ***Prism 1 or 2 Index / Rotation / Swing***

<b>Prism Position</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
<i>If prism is set to Index mode</i>				
Prism 0° → 360°	0	255	fade	
<i>If prism is set to Rotation mode</i>				
Rotation Stop	0	9	snap	Stop at 0°
CW Rotation fast	10	10	fade	
CW Rotation fast → slow	11	124		
CW Rotation slow	125	125		
Rotation Stop	126	129	snap	Stop at current position
CCW Rotation slow	130	130	fade	
CCW Rotation slow → fast	131	244		
CCW Rotation fast	245	245		
Rotation Stop	246	255	snap	Stop at 0°
<i>If prism is set to Swing mode</i>				
Prism Swing Stop	0	9	snap	Stop at 0°
Prism Swing slow 360°	10	10	fade	Prism Swing slow with full +/- 360° swing angle
Prism Swing slow	11	11		Prism Swing from slow full +/- 360° swing angle → Prism Swing fast +/- 10° swing angle
+/- 360° → fast +/- 10°				
Prism Swing fast +/- 10°	255	255		Prism Swing fast with only +/- 10° swing angle

### ***Effect Wheel***

<b>Effect</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
Off	0	9	Snap	Open
Effect Wheel	10	255	fade	Effect wheel in rotation mode

**Effect Wheel rotation**

Effect Wheel rotation	DMX range		fade	Note
Rotation Stop	0	9		Stop at current position
CW Rotation fast	10	10	fade	
CW Rotation fast → slow	11	124		
CW Rotation slow	125	125		
Rotation Stop	126	130	snap	Stop at current position
CCW Rotation slow	131	131	fade	
CCW Rotation slow → fast	132	244		
CCW Rotation fast	245	255		

**Gobo wheel 1 (rotating)**

Gobo Wheel 1	DMX range		fade	Note	
Open	0	4	snap	open	
Gobo 01 (index)	5	9			
Gobo 02 (index)	10	14			
Gobo 03 (index)	15	19			
Gobo 04 (index)	20	24			
Gobo 05 (index)	25	29			
Gobo 06 (index)	30	34			
Gobo 07 (index)	35	39			
Gobo 08 (index)	40	44			
Open	45	49			
Gobo 01 (rotation)	50	54			
Gobo 02 (rotation)	55	59			
Gobo 03 (rotation)	60	64			
Gobo 04 (rotation)	65	69			
Gobo 05 (rotation)	70	74			
Gobo 06 (rotation)	75	79			
Gobo 07 (rotation)	80	84			
Gobo 08 (rotation)	85	89			
Open	90	94			
Gobo 01 (swing)	95	99			
Gobo 02 (swing)	100	104			
Gobo 03 (swing)	105	109			
Gobo 04 (swing)	110	114			
Gobo 05 (swing)	115	119			
Gobo 06 (swing)	120	124			
Gobo 07 (swing)	125	129			
Gobo 08 (swing)	130	134			
Rotation Stop at Open	135	139	snap	Gobo Wheel Rotation - Stop at Open Position	
CW Rotation fast	140	140	fade	Gobo Wheel Rotation CW fast → slow	
CW Rotation fast → slow	141	194			
CW Rotation slow	195	195			
CW Rotation Stop	196	199	snap	Gobo Wheel Rotation - Stop at current position	

<b>Gobo Wheel 1</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
CCW Rotation slow	200	200	fade	Gobo Wheel Rotation CCW slow → fast
CCW Rotation slow → fast	201	254		
CCW Rotation fast	255	255		

### ***Gobo Wheel 1 index / rotation / swing***

**Gobo index / rotation / swing coarse and fine**

<b>Gobo index / rotation / swing coarse and fine</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
<i>If Gobo Wheel 1 is set to Index</i>				
Gobo 0° → 360°	0	65535	fade	(16 bit resolution)
<i>If Gobo Wheel 1 is set to Rotation</i>				
Rotation Stop	0	2304	snap	Stop at 0°
CW Rotation fast	2560	2560	fade	(16 bit resolution)
CW Rotation fast → slow	2816	31744		
CW Rotation slow	32000	32000		
Rotation Stop	32256	33024	snap	Stop at current position
CCW Rotation slow	33280	33280	fade	(16 bit resolution)
CCW Rotation slow → fast	33536	62464		
CCW Rotation fast	62720	62720		
Rotation Stop	62976	65535	snap	Stop at 0°
<i>If Gobo Wheel 1 is set to Swing</i>				
Gobo Swing Stop	0	2304	snap	Stop at 0°
Gobo Swing slow 360°	2560	2560	fade	Prism Swing slow with full +/- 360° swing angle
Gobo Swing slow +/- 360° → fast +/- 10°	2816	65024		Prism Swing from slow full +/- 360° swing angle → Prism Swing fast +/- 10° swing angle (16 bit resolution)
Gobo Swing fast +/- 10°	65535	65535		Prism Swing fast with only +/- 10° swing angle

**Gobo Wheel 2 (static)**

Gobo Wheel 2	DMX range	fade	Note	
Open	0	4	snap	open
Gobo 01	5	9	snap	
Gobo 02	10	14	snap	
Gobo 03	15	19	snap	
Gobo 04	20	24	snap	
Gobo 05	25	29	snap	
Gobo 06	30	34	snap	
Gobo 07	35	39	snap	
Gobo 08	40	44	snap	
Gobo 09	45	49	snap	
Gobo 10	50	54	snap	
Gobo 11	55	59	snap	
Open	60	64	snap	
Gobo 01 (shake) slow → fast	65	70	fade	Gobowheel shakes around full gobo position.
Gobo 02 (shake) slow → fast	71	76	fade	slow = wide shake in slow speed
Gobo 03 (shake) slow → fast	77	82	fade	fast = short shake in fast speed
Gobo 04 (shake) slow → fast	83	88	fade	
Gobo 05 (shake) slow → fast	89	94	fade	
Gobo 06 (shake) slow → fast	95	100	fade	
Gobo 07 (shake) slow → fast	101	106	fade	
Gobo 08 (shake) slow → fast	107	112	fade	
Gobo 09 (shake) slow → fast	113	118	fade	
Gobo 10 (shake) slow → fast	119	124	fade	
Gobo 11 (shake) slow → fast	125	130	fade	
Rotation Stop at Open	131	135	snap	Gobo Wheel Rotation - Stop at Open Position
CW Rotation fast	136	136	fade	Gobo Wheel Rotation CW fast → slow
CW Rotation fast → slow	137	192		
CW Rotation slow	193	193		
Rotation Stop	194	197	snap	Gobo Wheel Rotation - Stop at current position
CCW Rotation slow	198	198	fade	Gobo Wheel Rotation CCW slow → fast
CCW Rotation slow → fast	199	254		
CCW Rotation fast	255	255		

**FX Macro Select**

<b>FX Macro</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
Open	0	9	snap	No Macro
FX Macro 01	10	19	snap	
FX Macro 02	20	29	snap	
FX Macro 03	30	39	snap	
FX Macro 04	40	49	snap	
FX Macro 05	50	59	snap	
FX Macro 06	60	69	snap	
FX Macro 07	70	79	snap	
FX Macro 08	80	89	snap	
FX Macro 09	90	99	snap	
FX Macro 10	100	109	snap	
FX Macro 11	110	119	snap	
FX Macro 12	120	129	snap	
FX Macro 13	130	139	snap	
FX Macro 14	140	149	snap	
FX Macro 15	150	159	snap	
FX Macro 16	160	169	snap	
FX Macro 17	170	179	snap	
FX Macro 18	180	189	snap	
FX Macro 19	190	199	snap	
FX Macro 20	200	209	snap	
FX Macro 21	210	219	snap	
FX Macro 22	220	229	snap	
FX Macro 23	230	239	snap	
FX Macro 24	240	249	snap	

**FX Macro Speed**

<b>FX Macro speed</b>	<b>DMX range</b>		<b>fade</b>	<b>Note</b>
stop	0	9	snap	
slow	10	10	snap	
slow → fast	11	254	fade	
fast	255	255	snap	

## Special / Control

- Fixture Option Default settings are indicated with **bold type**.
- Where commands are marked (**3s hold**), you must send that DMX value continuously for 3 seconds (or other duration if indicated in the table) to apply the command.

Control/Setting	DMX range	fade	Note
Idle	0	9	snap
No function	10	19	
<b>Dimmer Curve: Soft (Square)</b>	20	21	snap (3s hold) (DEFAULT)
Dimmer Curve: Linear	22	23	snap (3s hold)
Dimmer Curve: S-Curve	24	25	snap (3s hold)
No function	26	29	
Display Mode: OFF	30	31	snap (3s hold)
<b>Display Mode: Auto</b>	32	33	snap (3s hold) (DEFAULT)
Display Mode : ON	34	35	snap (3s hold)
No function	36	37	
<b>Display Orientation: Auto</b>	38	39	snap (3s hold) (DEFAULT)
Display Orientation: Normal	40	41	snap (3s hold)
Display Orientation: Flip	42	43	snap (3s hold)
No function	44	45	
No Signal: Blackout	46	47	snap (3s hold) If DMX Fails, fixture will blackout
<b>No Signal: Hold</b>	48	49	snap (3s hold) (DEFAULT) If DMX Fails, fixture will hold last DMX Value
No Signal: Scene	50	51	snap (3s hold) If DMX Fails, fixture will run captured DMX Scene
Capture DMX Scene	52	53	snap (3s hold) Capture current DMX Scene for Stand-Alone
No function	54	55	
Fan Mode : Minimum	56	57	snap (3s hold) (Limited Output)
<b>Fan Mode: Regulated</b>	58	59	snap (3s hold) (DEFAULT)
Fan Mode: High	60	61	snap (3s hold)
Fan Mode : Medium	62	63	snap (3s hold) (Limited Output)
Fan Mode: Low	64	65	snap (3s hold) (Limited Output)
No function	66	91	
Position Feedback: OFF	92	93	snap (3s hold) Will enable position Feedback
<b>Position Feedback: ON</b>	94	95	snap (3s hold) (DEFAULT) Will disable Position Feedback
No function	96	97	
<b>Tilt invert OFF</b>	98	99	snap (3s hold) (DEFAULT)
Tilt invert ON	100	101	snap (3s hold)
<b>Pan invert OFF</b>	102	103	snap (3s hold) (DEFAULT)
Pan invert ON	104	105	snap (3s hold)
No function	106	127	
Performance: Low Temperature	128	129	snap (3s Hold)
Performance: Fast	130	131	snap (3s Hold)

Control/Setting	DMX range		fade	Note
<b>Performance: Normal</b>	132	133	snap	(3s Hold) (DEFAULT)
Performance: Smooth	134	135	snap	(3s Hold)
No function	136	189		
<b>Hibernation: OFF</b>	190	191	snap	(3s hold) (DEFAULT) Fixture will perform a Reset
Hibernation: ON	192	193	snap	(3s hold)
No function	194	211		
PWM 600 Hz	212	213	snap	(3s hold)
PWM 2200Hz	214	215	snap	(3s hold)
<b>PWM 3000 Hz</b>	216	217	snap	(Default) (3s hold)
PWM 4800Hz	218	219	snap	(3s hold)
PWM 9600Hz	220	221	snap	(3s hold)
PWM 25kHz	222	223	snap	(3s hold)
No function	224	229		
Save as User Setting Preset 1	230	231	snap	(3s hold)
Save as User Setting Preset 2	232	233	snap	(3s hold)
Save as User Setting Preset 3	234	235	snap	(3s hold)
No function	236	237		
Load User Setting Preset 1	238	239	snap	(3s hold)
Load User Setting Preset 2	240	241	snap	(3s hold)
Load User Setting Preset 3	242	243	snap	(3s hold)
Load Settings Default	244	245	snap	(3s hold)
No function	246	249		
Reset P/T	250	251	snap	(3s Hold) - Will trigger only one time. To retrigger, send 0 for 3s.
Reset HEAD	252	253	snap	(3s Hold) - Will trigger only one time. To retrigger, send 0 for 3s.
Reset ALL	254	255	snap	(3s Hold) - Will trigger only one time. To retrigger, send 0 for 3s.

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