DMX REFERENCE

Vertex Surface

ioversal



Manufacturer	ioversal
GDTF file	Ioversal_Vertex_Surface_57835.gdtf
GDTF revision	20240218 · 2024-02-18
Generated	2026-11-24

Contents

1 About this manual 2
2 Quick reference 2
3 Safety instructions 3
4 Product description 3
5 Installation 4
6 Connections 4
7 Operation 5
8 Functions at a glance 5
9 DMX channels 6
Mode Standard 7
Mode Color Only 12
10 Technical specifications 14
11 Maintenance and cleaning 14
12 Troubleshooting 14
13 Disposal 15

1 About this manual

This document describes the Vertex Surface by ioversal. It was compiled from the GDTF file Ioversal_Vertex_Surface_57835.gdtf from the GDTF-Share library.

File revision: “20240218”.

The DMX modes, the channel functions and the technical data are given as the GDTF file states them. Installation, operation from the device's control panel, service and safety instructions are described in the manufacturer's original user manual, which takes precedence over this document.

This document was not issued or endorsed by ioversal; product names and trademarks belong to their owners.

Safety notices are marked with signal words according to the severity of the hazard: DANGER – an imminent hazard that will result in death or serious injury; WARNING – a potential hazard that could result in death or serious injury; CAUTION – a potential hazard that could result in minor injury or property damage; NOTE – additional information for correct and safe use.

> **NOTE** This product is designed for stage and effect lighting. It is not suitable for household room illumination.

2 Quick reference

DMX modes

Mode	Channels	Units in one universe	First start addresses
Standard	104	4	1, 105, 209, 313
Color Only	37	13	1, 38, 75, 112, ...

No light? Check these channels

- Standard: CH 1 Dimmer above 0
- Color Only: CH 1 Dimmer above 0



Read the manual before use



Do not stare into the light



Indoor use only

3 Safety instructions



Read the manual before use



Do not stare into the light



Indoor use only

⚠ WARNING

- This device is intended for professional use. Installation, connection, setup and maintenance must be carried out only by suitably qualified persons who have read this manual.
- Use the device only for its intended purpose and as described in this manual.
- Do not open the housing and do not modify or tamper with the device. Refer all repairs to an authorized service center.
- Do not use the device if its housing, power or data cable, or a connector is damaged, if the device has been dropped, or if liquid or a foreign object has entered it. In such a case, have it checked by a service center.
- Disconnect the device from the power supply before cleaning, maintenance or any work on the connections.
- After moving the device from a cold to a warm environment, let it reach room temperature before switching it on to prevent condensation inside.
- The device is not a toy; keep it out of the reach of children.

⚠ WARNING

- This device is designed for indoor use only. Protect it from rain, splashing water, moisture and dust, and do not place containers with liquids on it.
- Do not operate the device in high humidity, near water, or where condensation can form on it.

⚠ CAUTION

- This device emits intense light. Do not look directly into the light source or the beam at close range; doing so may damage your eyes.
- Do not aim the beam at the eyes of people or animals at close range, and do not view the light source through optical instruments (binoculars, camera lenses).
- Do not aim the beam at flammable or heat-sensitive materials at close range.

4 Product description

Description in the GDTF file

“ioversal Vertex Surface Control DMX Modes: Standard, Color only”

5 Installation

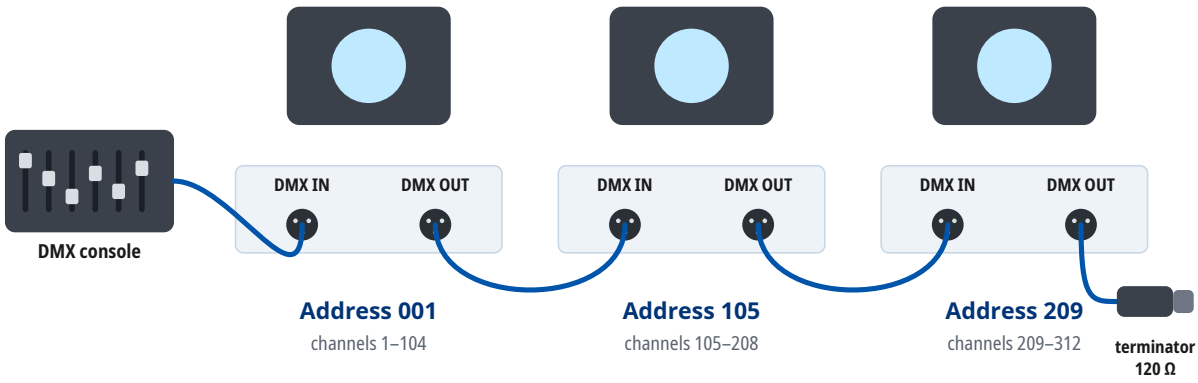
⚠ WARNING

- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Use suitable mounting hardware (for example truss clamps) and tighten all screw connections properly.
- Always secure the suspended device against falling with a safety cable of adequate load capacity, routed through a fixed point of the device and around the supporting structure.
- During installation and removal, keep people out of the area below the work position.
- Regularly inspect the fixings and the safety cable for damage, corrosion and loosening.

6 Connections

- Use shielded cable designed for DMX512 with an impedance of 110 Ω. Ordinary microphone cable is not suitable for DMX, especially over longer distances.
- Connect the devices in a daisy chain: connect the DMX OUT of one device to the DMX IN of the next. Do not split the line with Y-cables or wire it in a star; the line may be split only with a DMX splitter.
- Connect the shield to pin 1 only. Do not connect the shield (ground) to the metal shell of the connector; this can cause short circuits or erratic behavior.
- XLR pin assignment: pin 1 – shield (ground), pin 2 – Data- (Data Complement), pin 3 – Data+ (Data True). On 5-pin connectors, pins 4 and 5 are not connected; a 5-pin connector can be connected to a 3-pin one with a cable adapter.
- Terminate the end of the line (for impedance matching): plug an XLR connector with a 120 Ω, ¼ W resistor between pins 2 and 3 into the DMX OUT of the last device. This reduces the risk of erratic behavior.
- Connect no more than 32 devices to one DMX line. For more devices or longer runs, use a DMX splitter or booster.

DMX line



Mode Standard: every unit occupies 104 channels from its address. At most 32 units on one line; for more units or longer runs use a DMX splitter. A 120 Ω terminator closes the last DMX OUT.

7 Operation

Setting the DMX address

- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Standard”: 104.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “Standard”, you can use, for example, the start addresses 1, 105, 209, 313.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

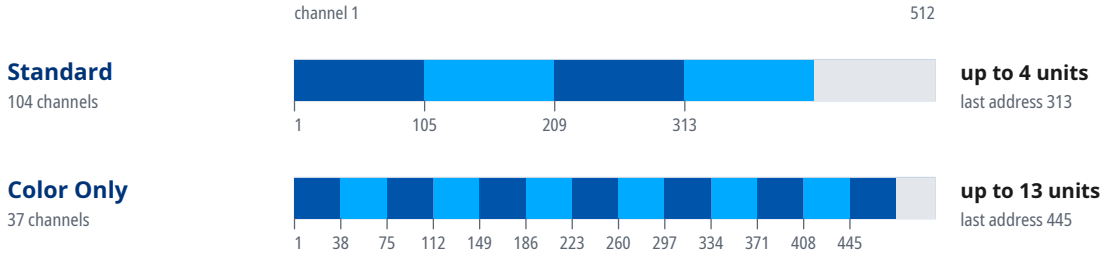
8 Functions at a glance

Functions in each DMX mode

	Standard 104 channels	Color Only 37 channels
Dimmer	1	1
Color mixing		30, 32, 34

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “Standard”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	U2 · 105	11	U3 · 209	16	U4 · 313
2	105	7	U2 · 209	12	U3 · 313	17	U5 · 1
3	209	8	U2 · 313	13	U4 · 1	18	U5 · 105
4	313	9	U3 · 1	14	U4 · 105	19	U5 · 209
5	U2 · 1	10	U3 · 105	15	U4 · 209	20	U5 · 313

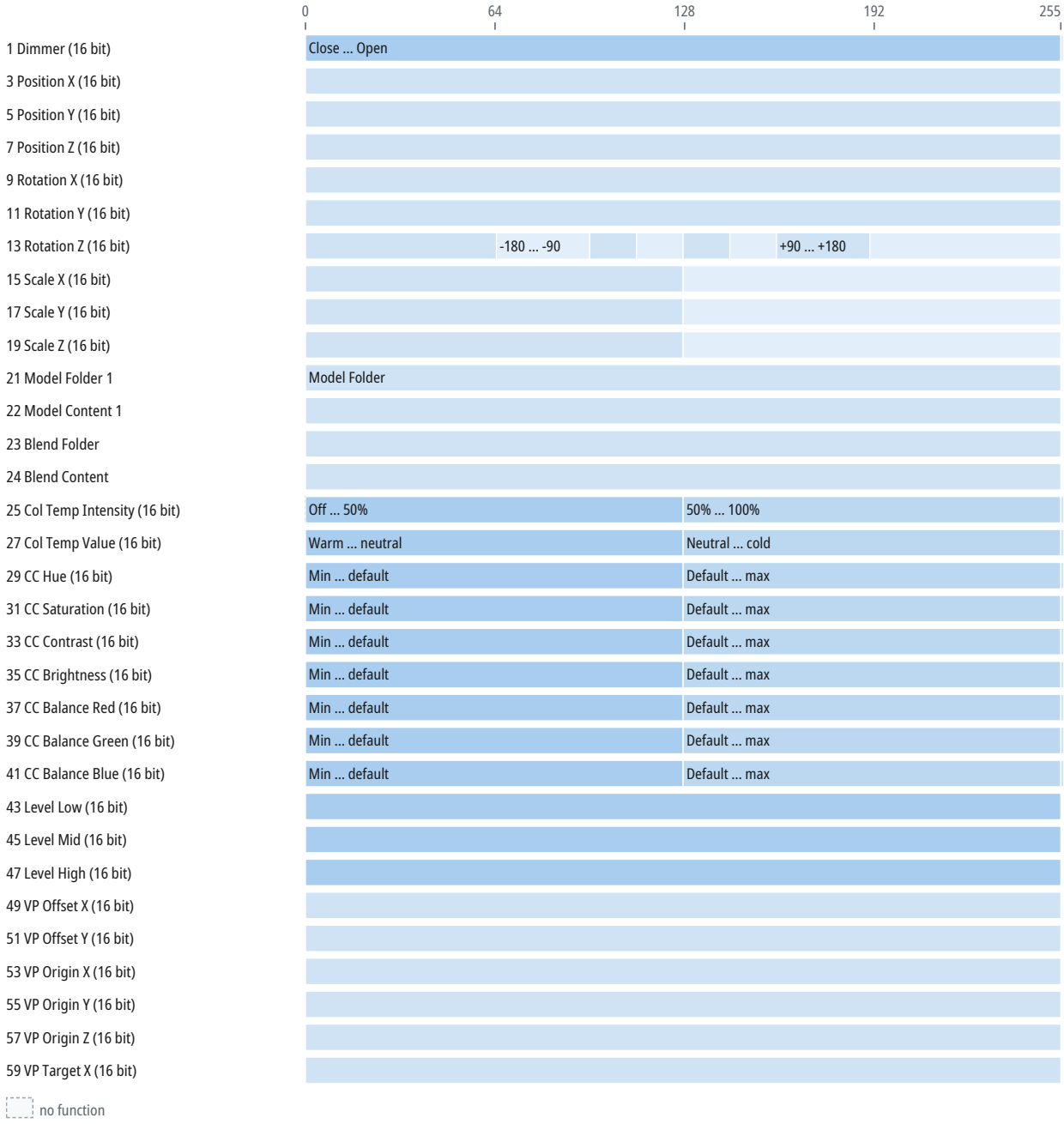
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode Standard

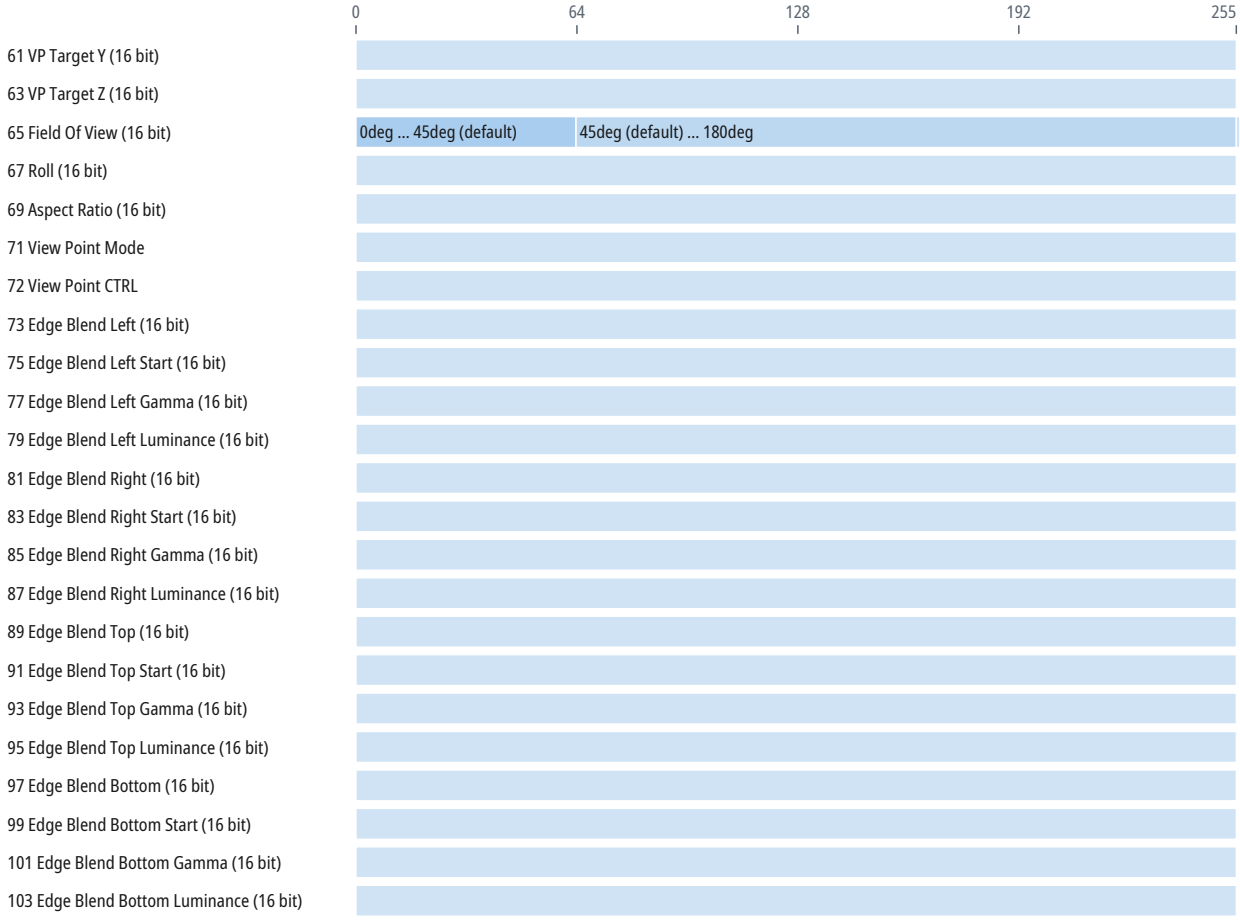
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance



Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0–255	Close ... Open
		255	Open
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Position X	0–255	
4	Position X Fine	0–255	Fine adjustment of CH 3
5	Position Y	0–255	
6	Position Y Fine	0–255	Fine adjustment of CH 5
7	Position Z	0–255	
8	Position Z Fine	0–255	Fine adjustment of CH 7
9	Rotation X	0–255	
10	Rotation X Fine	0–255	Fine adjustment of CH 9
11	Rotation Y	0–255	
12	Rotation Y Fine	0–255	Fine adjustment of CH 11
13	Rotation Z	0–64	Rot_Z
		64–96	-180 ... -90
		96–112	-90 ... -45
		112–127	-45 ... 0
		128–143	0 ... +45

CH	Function	DMX	Description
13	Rotation Z (continued)	143–159	+45 … +90
		159–191	+90 … +180
		191	+180
		191–255	Rot_Z
14	Rotation Z Fine	0–255	Fine adjustment of CH 13
15	Scale X	0–127	Scale_X
		128	Default
		128–255	Scale_X
16	Scale X Fine	0–255	Fine adjustment of CH 15
17	Scale Y	0–127	Scale_Y
		128	Default
		128–255	Scale_Y
18	Scale Y Fine	0–255	Fine adjustment of CH 17
19	Scale Z	0–127	Scale_Z
		128	Default
		128–255	Scale_Z
20	Scale Z Fine	0–255	Fine adjustment of CH 19
21	Model Folder 1	0–255	Model Folder
22	Model Content 1	0–255	
23	Blend Folder	0–255	
24	Blend Content	0–255	
25	Col Temp Intensity	0–127	Off … 50%
		128–255	50% … 100%
		255	100%
26	Col Temp Intensity Fine	0–255	Fine adjustment of CH 25
27	Col Temp Value	0–127	Warm … neutral
		128–255	Neutral … cold
		255	Cold
28	Col Temp Value Fine	0–255	Fine adjustment of CH 27
29	CC Hue	0–127	Min … default
		128–255	Default … max
		255	Max
30	CC Hue Fine	0–255	Fine adjustment of CH 29
31	CC Saturation	0–127	Min … default
		128–255	Default … max
		255	Max
32	CC Saturation Fine	0–255	Fine adjustment of CH 31
33	CC Contrast	0–127	Min … default
		128–255	Default … max
		255	Max
34	CC Contrast Fine	0–255	Fine adjustment of CH 33
35	CC Brightness	0–127	Min … default

CH	Function	DMX	Description
35	CC Brightness (continued)	128–255	Default … max
		255	Max
36	CC Brightness Fine	0–255	Fine adjustment of CH 35
37	CC Balance Red	0–127	Min … default
		128–255	Default … max
		255	Max
38	CC Balance Red Fine	0–255	Fine adjustment of CH 37
39	CC Balance Green	0–127	Min … default
		128–255	Default … max
		255	Max
40	CC Balance Green Fine	0–255	Fine adjustment of CH 39
41	CC Balance Blue	0–127	Min … default
		128–255	Default … max
		255	Max
42	CC Balance Blue Fine	0–255	Fine adjustment of CH 41
43	Level Low	0	Empty Channel Set
		0–255	Level_Low
44	Level Low Fine	0–255	Fine adjustment of CH 43
45	Level Mid	0	Empty Channel Set
		0–255	Level_Mid
46	Level Mid Fine	0–255	Fine adjustment of CH 45
47	Level High	0	Empty Channel Set
		0–255	Level_High
48	Level High Fine	0–255	Fine adjustment of CH 47
49	VP Offset X	0–255	
50	VP Offset X Fine	0–255	Fine adjustment of CH 49
51	VP Offset Y	0–255	
52	VP Offset Y Fine	0–255	Fine adjustment of CH 51
53	VP Origin X	0–255	
54	VP Origin X Fine	0–255	Fine adjustment of CH 53
55	VP Origin Y	0–255	
56	VP Origin Y Fine	0–255	Fine adjustment of CH 55
57	VP Origin Z	0–255	
58	VP Origin Z Fine	0–255	Fine adjustment of CH 57
59	VP Target X	0–255	
60	VP Target X Fine	0–255	Fine adjustment of CH 59
61	VP Target Y	0–255	
62	VP Target Y Fine	0–255	Fine adjustment of CH 61
63	VP Target Z	0–255	
64	VP Target Z Fine	0–255	Fine adjustment of CH 63
65	Field Of View	0–63	0deg … 45deg (default)
		64–255	45deg (default) … 180deg

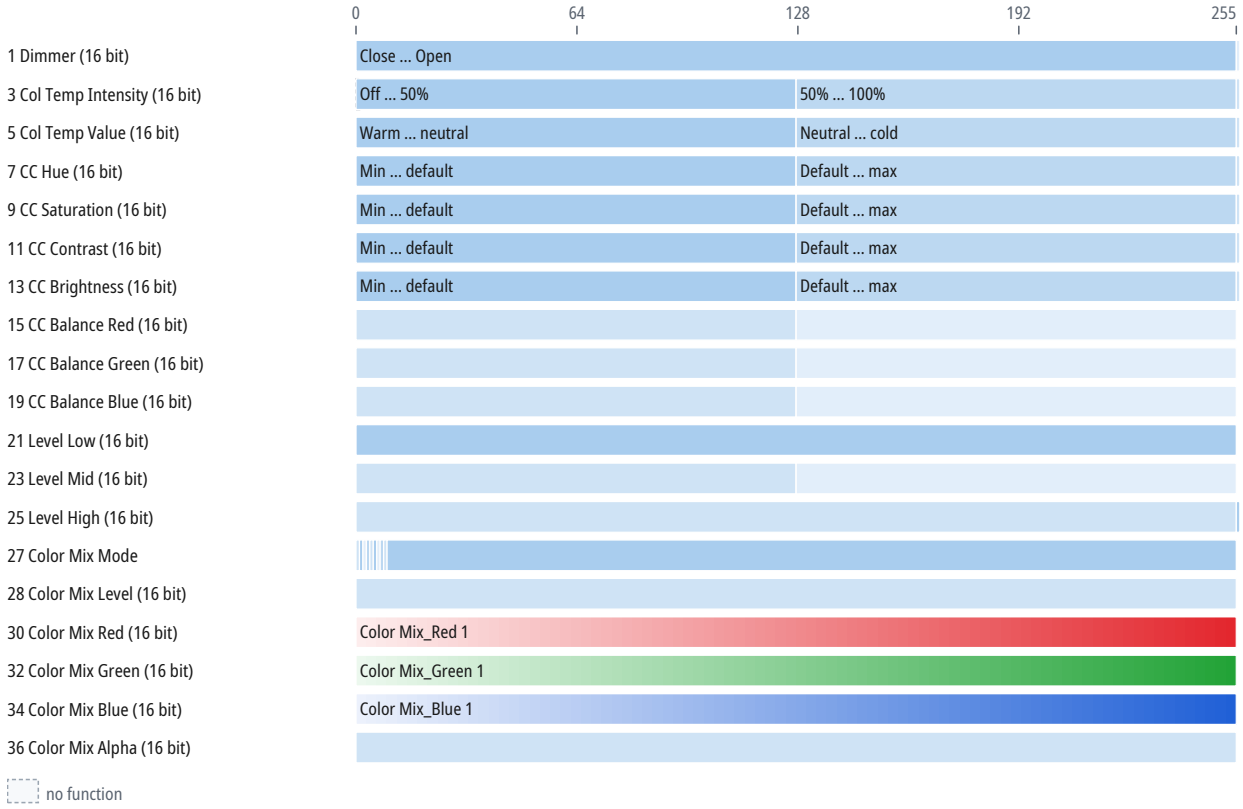
CH	Function	DMX	Description
65	Field Of View (continued)	255	180deg
66	Field Of View Fine	0–255	Fine adjustment of CH 65
67	Roll	0–255	
68	Roll Fine	0–255	Fine adjustment of CH 67
69	Aspect Ratio	0–255	
70	Aspect Ratio Fine	0–255	Fine adjustment of CH 69
71	View Point Mode	0–255	
72	View Point CTRL	0–255	
73	Edge Blend Left	0–255	
74	Edge Blend Left Fine	0–255	Fine adjustment of CH 73
75	Edge Blend Left Start	0–255	
76	Edge Blend Left Start Fine	0–255	Fine adjustment of CH 75
77	Edge Blend Left Gamma	0–255	
78	Edge Blend Left Gamma Fine	0–255	Fine adjustment of CH 77
79	Edge Blend Left Luminance	0–255	
80	Edge Blend Left Luminance Fine	0–255	Fine adjustment of CH 79
81	Edge Blend Right	0–255	
82	Edge Blend Right Fine	0–255	Fine adjustment of CH 81
83	Edge Blend Right Start	0–255	
84	Edge Blend Right Start Fine	0–255	Fine adjustment of CH 83
85	Edge Blend Right Gamma	0–255	
86	Edge Blend Right Gamma Fine	0–255	Fine adjustment of CH 85
87	Edge Blend Right Luminance	0–255	
88	Edge Blend Right Luminance Fine	0–255	Fine adjustment of CH 87
89	Edge Blend Top	0–255	
90	Edge Blend Top Fine	0–255	Fine adjustment of CH 89
91	Edge Blend Top Start	0–255	
92	Edge Blend Top Start Fine	0–255	Fine adjustment of CH 91
93	Edge Blend Top Gamma	0–255	
94	Edge Blend Top Gamma Fine	0–255	Fine adjustment of CH 93
95	Edge Blend Top Luminance	0–255	
96	Edge Blend Top Luminance Fine	0–255	Fine adjustment of CH 95
97	Edge Blend Bottom	0–255	
98	Edge Blend Bottom Fine	0–255	Fine adjustment of CH 97
99	Edge Blend Bottom Start	0–255	
100	Edge Blend Bottom Start Fine	0–255	Fine adjustment of CH 99
101	Edge Blend Bottom Gamma	0–255	
102	Edge Blend Bottom Gamma Fine	0–255	Fine adjustment of CH 101
103	Edge Blend Bottom Luminance	0–255	
104	Edge Blend Bottom Luminance Fine	0–255	Fine adjustment of CH 103

Mode Color Only

16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “Standard” (p. 8)
2	Dimmer Fine	0–255	Fine adjustment of CH 1
3	Col Temp Intensity		Same as CH 25 in the mode “Standard” (p. 9)
4	Col Temp Intensity Fine	0–255	Fine adjustment of CH 3
5	Col Temp Value		Same as CH 27 in the mode “Standard” (p. 9)
6	Col Temp Value Fine	0–255	Fine adjustment of CH 5
7	CC Hue		Same as CH 29 in the mode “Standard” (p. 9)
8	CC Hue Fine	0–255	Fine adjustment of CH 7
9	CC Saturation		Same as CH 31 in the mode “Standard” (p. 9)
10	CC Saturation Fine	0–255	Fine adjustment of CH 9
11	CC Contrast		Same as CH 33 in the mode “Standard” (p. 9)
12	CC Contrast Fine	0–255	Fine adjustment of CH 11
13	CC Brightness		Same as CH 35 in the mode “Standard” (p. 9)
14	CC Brightness Fine	0–255	Fine adjustment of CH 13
15	CC Balance Red	0–127	CC_Balance_Red
		128	Default

CH	Function	DMX	Description
15	CC Balance Red (continued)	128–255	CC_Balance_Red
16	CC Balance Red Fine	0–255	Fine adjustment of CH 15
17	CC Balance Green	0–127	CC_Balance_Green
		128	Default
		128–255	CC_Balance_Green
18	CC Balance Green Fine	0–255	Fine adjustment of CH 17
19	CC Balance Blue	0–127	CC_Balance_Blue
		128	Default
		128–255	CC_Balance_Blue
20	CC Balance Blue Fine	0–255	Fine adjustment of CH 19
21	Level Low	0	Default
		0–255	Level_Low 1
22	Level Low Fine	0–255	Fine adjustment of CH 21
23	Level Mid	0–127	Level_Mid 1
		128	Default
		128–255	Level_Mid 1
24	Level Mid Fine	0–255	Fine adjustment of CH 23
25	Level High	0–255	Level_High 1
		255	Default
26	Level High Fine	0–255	Fine adjustment of CH 25
27	Color Mix Mode	0	Normal
		1	Multiply 4x
		2	Add 4x
		3	Subtract
		4	Divide
		5	ColorBalance
		6	Mix
		7	Multiply
		8	Add
		9–255	Color Mix Mode
28	Color Mix Level	0–255	
29	Color Mix Level Fine	0–255	Fine adjustment of CH 28
30	Color Mix Red		Color Mix_Red 1
		0–255	Color Mix_Red 1
31	Color Mix Red Fine	0–255	Fine adjustment of CH 30
32	Color Mix Green		Color Mix_Green 1
		0–255	Color Mix_Green 1
33	Color Mix Green Fine	0–255	Fine adjustment of CH 32
34	Color Mix Blue		Color Mix_Blue 1
		0–255	Color Mix_Blue 1

CH	Function	DMX	Description
35	Color Mix Blue Fine	0–255	Fine adjustment of CH 34
36	Color Mix Alpha	0–255	
37	Color Mix Alpha Fine	0–255	Fine adjustment of CH 36

10 Technical specifications

Parameter	Value
Operating temperature	0 to 40 °C

11 Maintenance and cleaning

- Before cleaning and maintenance, switch the device off, disconnect it from the power supply and let it cool down.
- Clean the housing with a soft, dry or slightly damp cloth. Do not use solvents, abrasive cleaners or pressure washers, and make sure no liquid gets into the device.
- Clean optical parts (lenses, front glass), if the device has any, with a soft lint-free cloth and a cleaner intended for optics or glass.
- Regularly inspect the housing, cables, connectors and fixings. Have damaged parts replaced by a service center.
- How often to clean depends on the environment; dust, smoke and fog make the device dirty much faster.

12 Troubleshooting

Problem	Remedy
The device does not switch on	Check the supply voltage, the cables and the fuse, if the device has one.
The device does not respond to DMX	Check the start address, the selected DMX mode and whether it matches the profile in the controller, the cable connection to DMX IN, and the controller output (universe).
The device behaves erratically or flickers	Check the terminator at the end of the line, the condition and wiring of the cables (shield on pin 1 only), the number of devices on the line (32 at most), and that the line is not split without a splitter.
Only some devices on the line respond	Check the cable and connectors between the last working and the first non-working device, and make sure all devices on the line are switched on.
Devices respond to the wrong channels or affect each other	Check that the addresses do not overlap and that the DMX mode on the devices matches the patch in the controller.
The device or the connected load does not light up although it receives DMX	Check the values of the dimmer, shutter and strobe channels against the DMX channel table. For the DMX modes for which the sources state it, the chapter DMX channels gives under the mode's heading which channels must be open.

13 Disposal

The crossed-out wheeled bin symbol on the product, in the manual or on the packaging means that the product must not be disposed of with unsorted household waste at the end of its life.

Take the end-of-life equipment to a collection point, for example a municipal collection site or a retailer. Proper disposal enables materials to be recycled and helps prevent possible negative effects on the environment and human health.

Follow the regulations applicable in your country; in the Czech Republic, take-back is governed by Act No. 542/2020 Coll., on End-of-Life Products.

Recycle the packaging materials according to their type.