DMX REFERENCE

BR-615-2

BRFO



Manufacturer	BRFO
GDTF file	BRFO_BR-615-2_114922.gdtf
GDTF revision	20251024 · 2025-10-24
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1 About this manual

This document describes the BR-615-2 by BRFO. It was compiled from the GDTF file BRFO_BR-615-2_114922.gdtf from the GDTF-Share library.

File revision: “20251024”.

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 BRFO; 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

Parameter	Value
Weight	10.9 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
28CH	28	18	1, 29, 57, 85, ...
24CH	24	21	1, 25, 49, 73, ...
22CH	22	23	1, 23, 45, 67, ...
15CH	15	34	1, 16, 31, 46, ...

No light? Check these channels

- 28CH: CH 1 Dimmer 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 14 Dimmer 2 above 0; CH 15 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”
- 24CH: CH 1 Dimmer 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 12 Dimmer 2 above 0; CH 13 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”
- 22CH: CH 1 Dimmer 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 12 Dimmer 2 above 0; CH 13 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”
- 15CH: CH 1 Dimmer above 0; CH 2 Shutter at 32–63, 96–127, 160–191 or 224–255 “Shutter open”


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.

⚠ CAUTION

- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them longer than necessary.

⚠ WARNING

- The moving parts of the device (for example the head or arms) can move quickly and unexpectedly at any time – after power-on, during a reset, or on a command from the controller.
- Keep yourself and any objects out of the range of movement. While the device is switched on, do not touch the moving parts, move them by hand, or obstruct their movement; this can cause injury (pinching) and damage the drive.
- Do not carry the device by its moving parts. If the device has a transport lock, engage it before transport and release it before switching on.

4 Installation

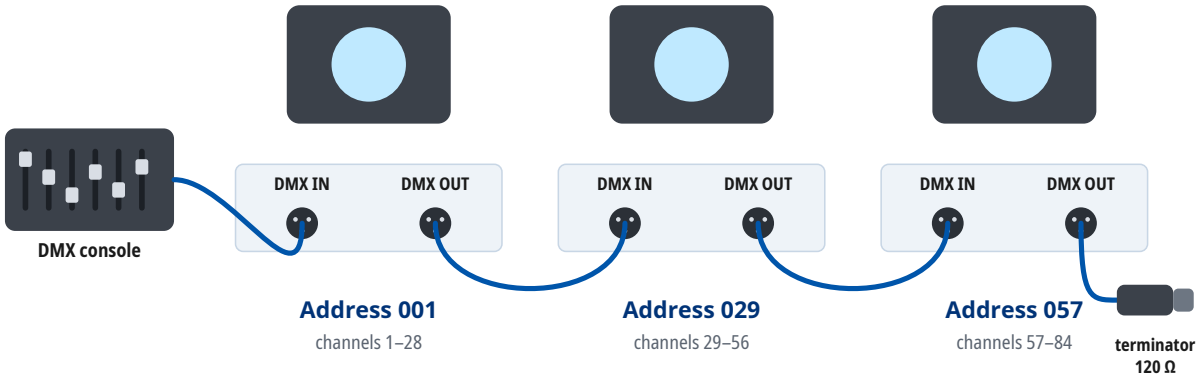
⚠ WARNING

- 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.
- Weight of the device: 10.9 kg.
- 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.

5 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 28CH: every unit occupies 28 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.

6 Operation

Setting the DMX address

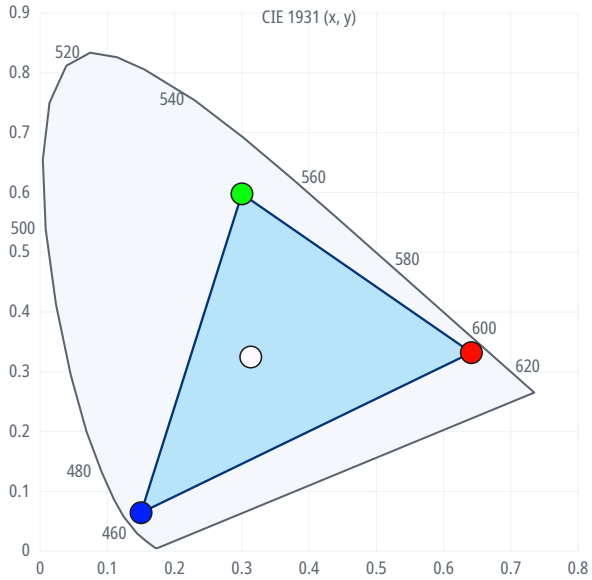
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “28CH”: 28.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “28CH”, you can use, for example, the start addresses 1, 29, 57, 85.
- The DMX mode set on the device must match the fixture profile (personality) used in the controller.

7 Functions at a glance

Functions in each DMX mode

	28CH 28 channels	24CH 24 channels	22CH 22 channels	15CH 15 channels
Pan / Tilt	**4 channels (3–18)**	**3, 4, 14, 15**	**3, 4**	**3, 5**
Pan / Tilt resolution	16 bit	8 bit	8 bit	16 bit
Dimmer	**1, 14**	**1, 12**	**1, 12**	**1**
Shutter / strobe	**2, 15**	**2, 13**	**2, 13**	**2**
Color mixing	**8–11, 21–24**	**6–9, 17–20**	**6–9, 15–18**	**8–11**
Zoom	**7, 20**	**5, 16**	**5, 14**	**7**
Effects / macros	**12, 13, 25, 26**	**10, 11, 21, 22**	**10, 11, 19, 20**	**12, 13**

LED colors and the colors they mix

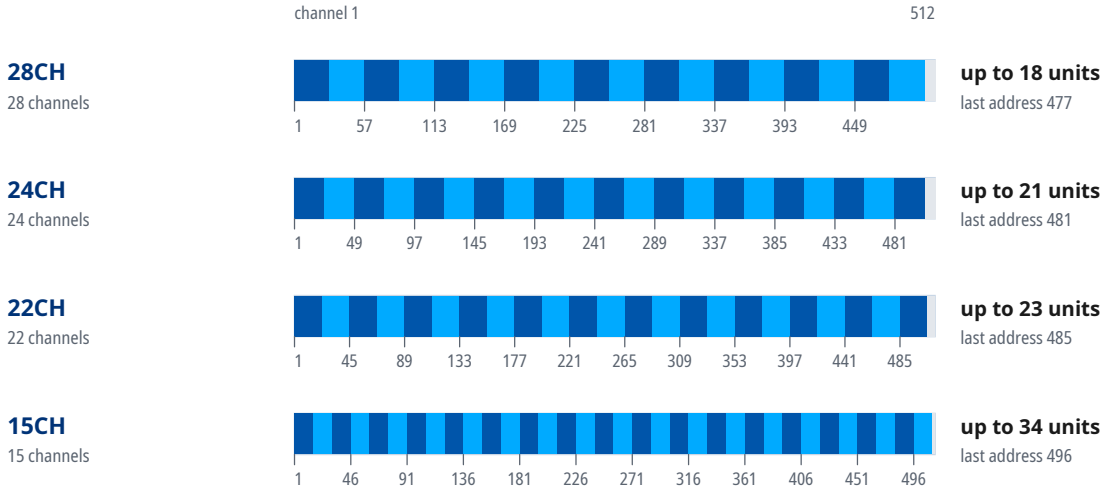


LED	x	y	nm
White	0.313	0.325	
Red	0.641	0.332	620
Green	0.300	0.598	525
Blue	0.150	0.064	455

The shaded area holds the colors the LEDs can mix; the dots are the LED colors the GDTF file states.

8 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “28CH”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	141	11	281	16	421
2	29	7	169	12	309	17	449
3	57	8	197	13	337	18	477
4	85	9	225	14	365	19	U2 · 1
5	113	10	253	15	393	20	U2 · 29

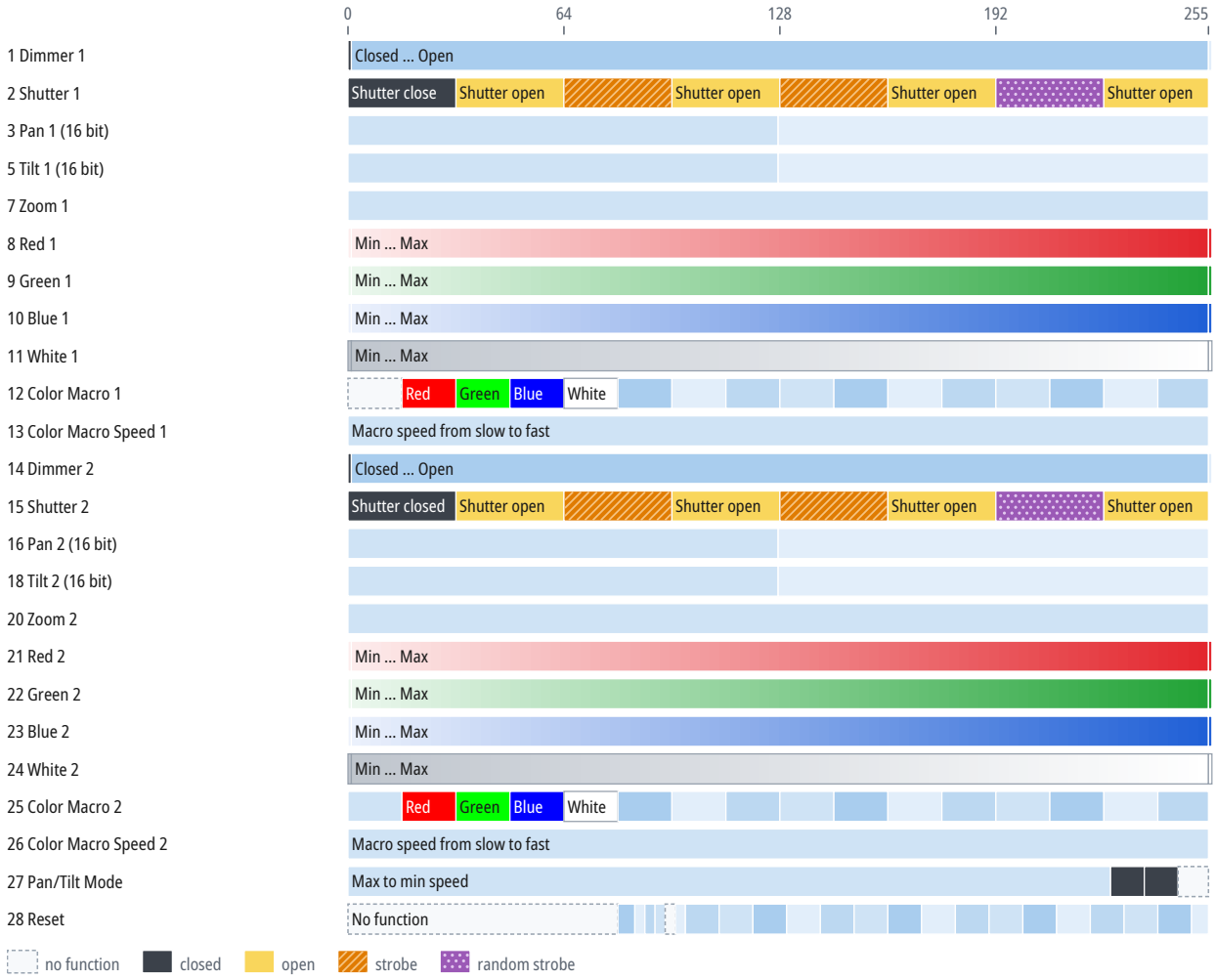
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 28CH

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 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 14 Dimmer 2 above 0; CH 15 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 1 255, CH 8 Red 1 0, CH 9 Green 1 0, CH 12 Color Macro 1 0, CH 13 Color Macro Speed 1 0, CH 21 Red 2 0, CH 22 Green 2 0, CH 23 Blue 2 0, CH 25 Color Macro 2 0, CH 26 Color Macro Speed 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer 1	0	Closed
		1–254	Closed ... Open
		255	Open
2	Shutter 1	0–31	Shutter close
		32–63	Shutter open
		64–95	Strobe effect slow to fast
		96–127	Shutter open
		128–159	Pulse effect in sequences slow to fast

CH	Function	DMX	Description
2	Shutter 1 (continued)	160–191	Shutter open
		192–223	Random strobe effect slow to fast
		224–255	Shutter open
3	Pan 1	0–127	Pan 1
		128	Center
		128–255	Pan 1
4	Pan 1 Fine	0–255	Fine adjustment of CH 3
5	Tilt 1	0–127	Tilt 1
		128	Center
		128–255	Tilt 1
6	Tilt 1 Fine	0–255	Fine adjustment of CH 5
7	Zoom 1	0–255	
8	Red 1	0	Min
		1–254	Min ... Max
		255	Max
9	Green 1	0	Min
		1–254	Min ... Max
		255	Max
10	Blue 1	0	Min
		1–254	Min ... Max
		255	Max
11	White 1	0	Min
		1–254	Min ... Max
		255	Max
12	Color Macro 1	0–15	No function
		16–31	Red
		32–47	Green
		48–63	Blue
		64–79	White
		80–95	Red+Green
		96–111	Red+Blue
		112–127	Red+White
		128–143	Green+Blue
		144–159	Green+White
		160–175	Blue+white
		176–191	Red+green+blue
		192–207	Red+green+blue+white
		208–223	Jump effect
		224–239	Fading effect
		240–255	Jump effect fading effect pulse effect
13	Color Macro Speed 1	0–255	Macro speed from slow to fast
14	Dimmer 2	0	Closed

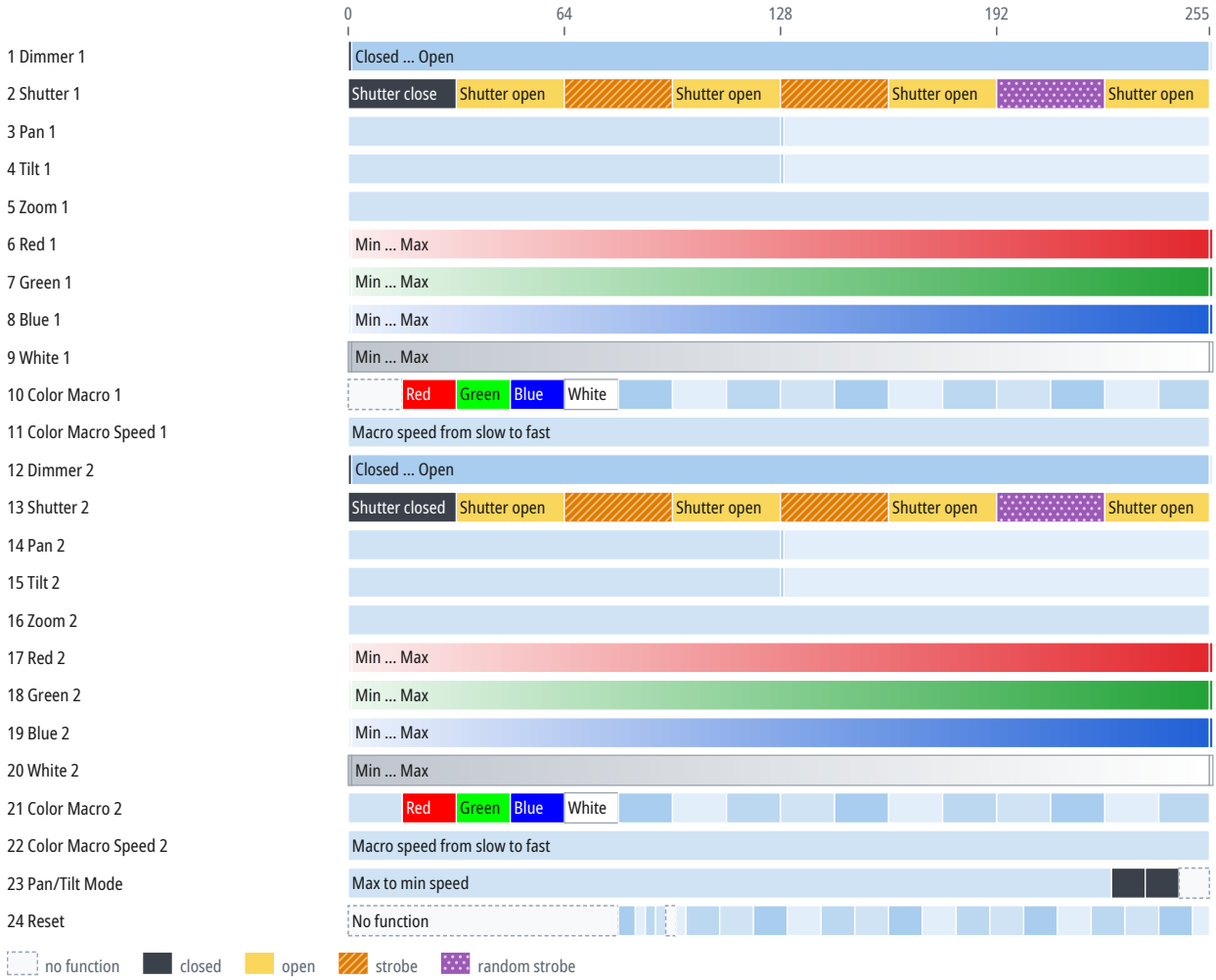
CH	Function	DMX	Description
14	Dimmer 2 (continued)	1–254	Closed ... Open
		255	Open
15	Shutter 2	0–31	Shutter closed
		32–63	Shutter open
		64–95	Strobe effect slow to fast
		96–127	Shutter open
		128–159	Pulse effect in sequence slow to fast
		160–191	Shutter open
		192–223	Random strobe effect slow to fast
		224–255	Shutter open
16	Pan 2	0–127	Pan 1
		128	Center
		128–255	Pan 1
17	Pan 2 Fine	0–255	Fine adjustment of CH 16
18	Tilt 2	0–127	Tilt 1
		128	Center
		128–255	Tilt 1
19	Tilt 2 Fine	0–255	Fine adjustment of CH 18
20	Zoom 2	0–255	
21	Red 2	0	Min
		1–254	Min ... Max
		255	Max
22	Green 2	0	Min
		1–254	Min ... Max
		255	Max
23	Blue 2	0	Min
		1–254	Min ... Max
		255	Max
24	White 2	0	Min
		1–254	Min ... Max
		255	Max
25	Color Macro 2	0–15	No funtion
		16–31	Red
		32–47	Green
		48–63	Blue
		64–79	White
		80–95	Red+green
		96–111	Red+blue
		112–127	Red+white
		128–143	Green+blue
		144–159	Green+white
		160–175	Blue+white

CH	Function	DMX	Description
25	Color Macro 2 (continued)	176–191	Red+green+blue
		192–207	Red+green+blue+white
		208–223	Jump effect
		224–239	Fading effect
		240–255	Jump effect fading effect pulse effect
26	Color Macro Speed 2	0–255	Macro speed from slow to fast
27	Pan/Tilt Mode	0–225	Max to min speed
		226–235	Blackout by movement
		236–245	Blackout by all wheel changing
		246–255	No function
28	Reset	0–79	No function
		80–84	All motor reset
		85–87	Scan motor reset
		88–90	Color motor reset
		91–93	Gobo motor reset
		94–96	No function
		97–99	Othter motor reset
		100–109	Interanl program 1
		110–119	Interanl program 2
		120–129	Interanl program 3
		130–139	Interanl program 4
		140–149	Interanl program 5
		150–159	Interanl program 6
		160–169	Interanl program 7
		170–179	Interanl program 8
		180–189	Internal sound program 1
		190–199	Internal sound program 2
		200–209	Internal sound program 3
		210–219	Internal sound program 4
		220–229	Internal sound program 5
		230–239	Internal sound program 6
		240–249	Internal sound program 7
		250–255	Internal sound program 8

Mode 24CH

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 12 Dimmer 2 above 0; CH 13 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 1 255, CH 6 Red 1 0, CH 7 Green 1 0, CH 10 Color Macro 1 0, CH 11 Color Macro Speed 1 0, CH 17 Red 2 0, CH 18 Green 2 0, CH 19 Blue 2 0, CH 21 Color Macro 2 0, CH 22 Color Macro Speed 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer 1		Same as CH 1 in the mode “28CH” (p. 9)
2	Shutter 1		Same as CH 2 in the mode “28CH” (p. 9)
3	Pan 1	0–127	Pan 1
		128	Center
		129–255	Pan 1
4	Tilt 1	0–127	Tilt 1
		128	Center
		129–255	Tilt 1
5	Zoom 1	0–255	

CH	Function	DMX	Description
6	Red 1		Same as CH 8 in the mode “28CH” (p. 10)
7	Green 1		Same as CH 9 in the mode “28CH” (p. 10)
8	Blue 1		Same as CH 10 in the mode “28CH” (p. 10)
9	White 1		Same as CH 11 in the mode “28CH” (p. 10)
10	Color Macro 1		Same as CH 12 in the mode “28CH” (p. 10)
11	Color Macro Speed 1	0–255	Macro speed from slow to fast
12	Dimmer 2		Same as CH 14 in the mode “28CH” (p. 10)
13	Shutter 2		Same as CH 15 in the mode “28CH” (p. 11)
14	Pan 2	0–127	Pan 1
		128	Center
		129–255	Pan 1
15	Tilt 2	0–127	Tilt 1
		128	Center
		129–255	Tilt 1
16	Zoom 2	0–255	
17	Red 2		Same as CH 21 in the mode “28CH” (p. 11)
18	Green 2		Same as CH 22 in the mode “28CH” (p. 11)
19	Blue 2		Same as CH 23 in the mode “28CH” (p. 11)
20	White 2		Same as CH 24 in the mode “28CH” (p. 11)
21	Color Macro 2		Same as CH 25 in the mode “28CH” (p. 11)
22	Color Macro Speed 2	0–255	Macro speed from slow to fast
23	Pan/Tilt Mode		Same as CH 27 in the mode “28CH” (p. 12)
24	Reset		Same as CH 28 in the mode “28CH” (p. 12)

Mode 22CH

If the device receives DMX in this mode but gives no light, check these channels: CH 1 Dimmer 1 above 0; CH 2 Shutter 1 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”; CH 12 Dimmer 2 above 0; CH 13 Shutter 2 at 32–63, 96–127, 160–191 or 224–255 “Shutter open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 1 255, CH 6 Red 1 0, CH 7 Green 1 0, CH 10 Color Macro 1 0, CH 11 Color Macro Speed 1 0, CH 15 Red 2 0, CH 16 Green 2 0, CH 17 Blue 2 0, CH 19 Color Macro 2 0, CH 20 Color Macro Speed 2 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer 1		Same as CH 1 in the mode “28CH” (p. 9)
2	Shutter 1		Same as CH 2 in the mode “28CH” (p. 9)
3	Pan	0–127	Pan 1
		128	Center
		129–255	Pan 1
4	Tilt	0–127	Tilt 1
		128	Center
		129–255	Tilt 1
5	Zoom 1	0–255	
6	Red 1		Same as CH 8 in the mode “28CH” (p. 10)
7	Green 1		Same as CH 9 in the mode “28CH” (p. 10)

CH	Function	DMX	Description
8	Blue 1		Same as CH 10 in the mode “28CH” (p. 10)
9	White 1		Same as CH 11 in the mode “28CH” (p. 10)
10	Color Macro 1		Same as CH 12 in the mode “28CH” (p. 10)
11	Color Macro Speed 1	0–255	Macro speed from slow to fast
12	Dimmer 2		Same as CH 14 in the mode “28CH” (p. 10)
13	Shutter 2		Same as CH 15 in the mode “28CH” (p. 11)
14	Zoom 2	0–255	
15	Red 2		Same as CH 21 in the mode “28CH” (p. 11)
16	Green 2		Same as CH 22 in the mode “28CH” (p. 11)
17	Blue 2		Same as CH 23 in the mode “28CH” (p. 11)
18	White 2		Same as CH 24 in the mode “28CH” (p. 11)
19	Color Macro 2		Same as CH 25 in the mode “28CH” (p. 11)
20	Color Macro Speed 2	0–255	Macro speed from slow to fast
21	Pan/Tilt Mode		Same as CH 27 in the mode “28CH” (p. 12)
22	Reset		Same as CH 28 in the mode “28CH” (p. 12)

Mode 15CH

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; CH 2 Shutter at 32–63, 96–127, 160–191 or 224–255 “Shutter open”. The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 8 Red 0, CH 9 Green 0, CH 12 Color Macro 0, CH 13 Color Macro Speed 0.

Channel functions at a glance



CH	Function	DMX	Description
1	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
2	Shutter	0–31	Shutter close

CH	Function	DMX	Description
2	Shutter (continued)	32–63	Shutter open
		64–95	Strobe effect slow to fast
		96–127	Shutter open
		128–159	Pulse effect in sequences slow to fast
		160–191	Shutter open
		192–223	Random strobe effect slow to fast
		224–255	Shutter open
3	Pan	0–128	Pan 1
		128	Center
		128–255	Pan 1
4	Pan Fine	0–255	Fine adjustment of CH 3
5	Tilt	0–128	Tilt 1
		128	Center
		128–255	Tilt 1
6	Tilt Fine	0–255	Fine adjustment of CH 5
7	Zoom	0–255	
8	Red	0	Min
		1–254	Min ... Max
		255	Max
9	Green	0	Min
		1–254	Min ... Max
		255	Max
10	Blue	0	Min
		1–254	Min ... Max
		255	Max
11	White	0	Min
		1–254	Min ... Max
		255	Max
12	Color Macro	0–15	No function
		16–31	Red
		32–47	Green
		48–63	Blue
		64–79	White
		80–95	Red+Green
		96–111	Red+Blue
		112–127	Red+White
		128–143	Green+Blue
		144–159	Green+White
		160–175	Blue+white
		176–191	Red+green+blue
		192–207	Red+green+blue+white
		208–223	Jump effect

CH	Function	DMX	Description
12	Color Macro (continued)	224–239	Fading effect
		240–255	Jump effect fading effect pulse effect
13	Color Macro Speed	0–255	Macro speed from slow to fast
14	Pan/Tilt Mode		Same as CH 27 in the mode “28CH” (p. 12)
15	Reset		Same as CH 28 in the mode “28CH” (p. 12)

9 Technical specifications

Parameter	Value
Weight	10.9 kg
Operating temperature	-35 to 45 °C

10 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.

11 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.
Movement is reversed	Check whether Pan/Tilt inversion is enabled in the device menu or in the controller.
Moving parts do not reach the correct position after power-on or transport	Switch the device off and on again to reset the position, and make sure the transport lock, if any, is released. If this does not help, contact a service center.
Movement is jerky	Check the value of the Pan/Tilt speed channel, if the device has one, and the stability of the DMX signal.

12 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.