DMX REFERENCE

broWASH-S 28x12XWAU

Stage 4 broWASH-S 28x12XWAU

Stage4



Manufacturer	Stage4
GDTF file	Stage4_broWASH-S_28x12XWAU_166072.gdtf
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1 About this manual

This document describes the Stage 4 broWASH-S 28x12XWAU by Stage4. It was compiled from the GDTF file Stage4_broWASH-S_28x12XWAU_166072.gdtf from the GDTF-Share library.

File revision: “leshyaoh”.

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 Stage4; 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	6.2 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
21CH Mode	21	24	1, 22, 43, 64, ...
45CH Mode	45	11	1, 46, 91, 136, ...

No light? Check these channels

- 21CH Mode: CH 1 Dimmer above 0; CH 2 Shutter at 32–63, 96–127, 160–191 or 224–255 “Open”
- 45CH Mode: CH 1 Dimmer above 0; CH 2 Shutter at 32–63, 96–127, 160–191 or 224–255 “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.

⚠ WARNING

- This device emits ultraviolet (UV) radiation, which can harm the eyes and skin.
- Do not look directly into the light source and avoid prolonged exposure of the eyes and skin at close range. Install the device so that people are not exposed at close range.
- People with increased sensitivity to light, including those taking medication that increases this sensitivity, should avoid UV exposure.

⚠ 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 Product description

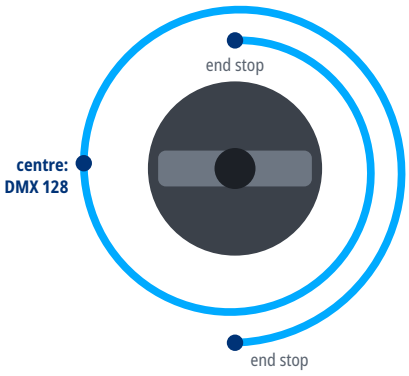
Description in the GDTF file

“28x12W RGBWA+UV Wash Moving Head with Zoom and 4 Pixel Segments”

Range of movement

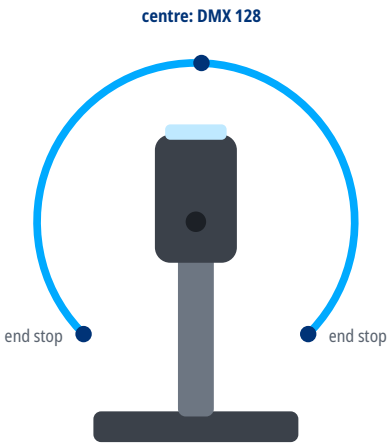
Pan 540°

top view



Tilt 270°

side view



5 Installation

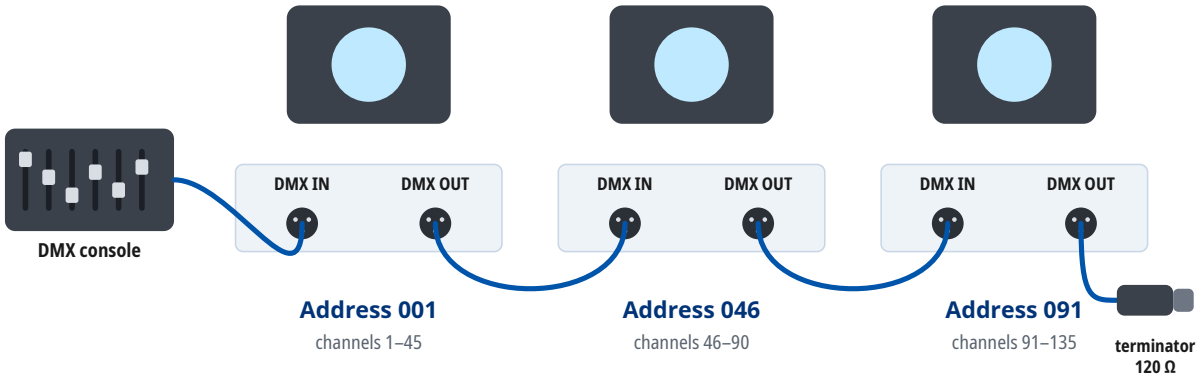
⚠ WARNING

- 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.
- Weight of the device: 6.2 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.

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 45CH Mode: every unit occupies 45 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

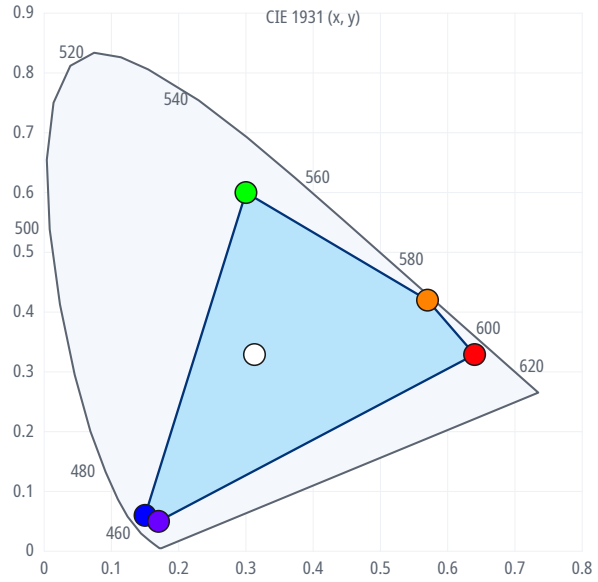
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “45CH Mode”: 45.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “45CH Mode”, you can use, for example, the start addresses 1, 46, 91, 136.
- 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

	21CH Mode 21 channels	45CH Mode 45 channels
Pan / Tilt	3, 5	3, 5
Dimmer	1	1
Shutter / strobe	2	2
Color mixing	8–13	8–13, 15–38
Color temperature	16	40
Zoom	14	14
Effects / macros	15, 17, 19	39, 41, 43
Pixel control		✓

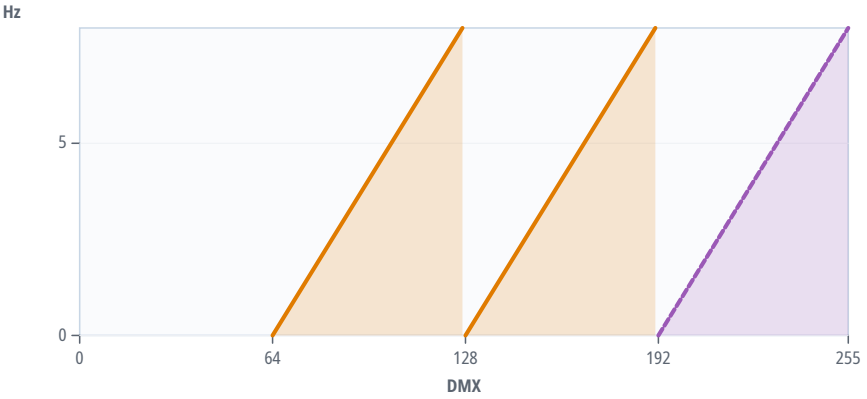
LED colors and the colors they mix



LED	x	y	nm
Red	0.640	0.329	625
Green	0.300	0.600	525
Blue	0.150	0.060	465
White	0.313	0.329	
Amber	0.570	0.420	590
UV	0.170	0.050	400

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

Strobe rate

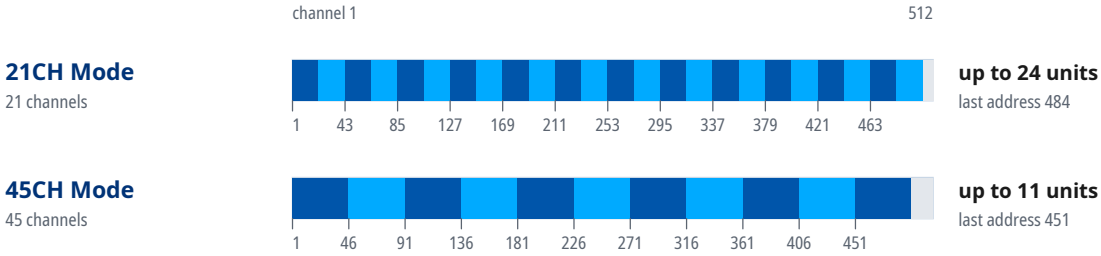


CH 2 · 45CH Mode

- 64–127: 0–8 Hz Strobe
- 128–191: 0–8 Hz Pulse
- 192–255: 0–8 Hz Random

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “45CH Mode”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	226	11	451	16	U2 · 181
2	46	7	271	12	U2 · 1	17	U2 · 226
3	91	8	316	13	U2 · 46	18	U2 · 271
4	136	9	361	14	U2 · 91	19	U2 · 316
5	181	10	406	15	U2 · 136	20	U2 · 361

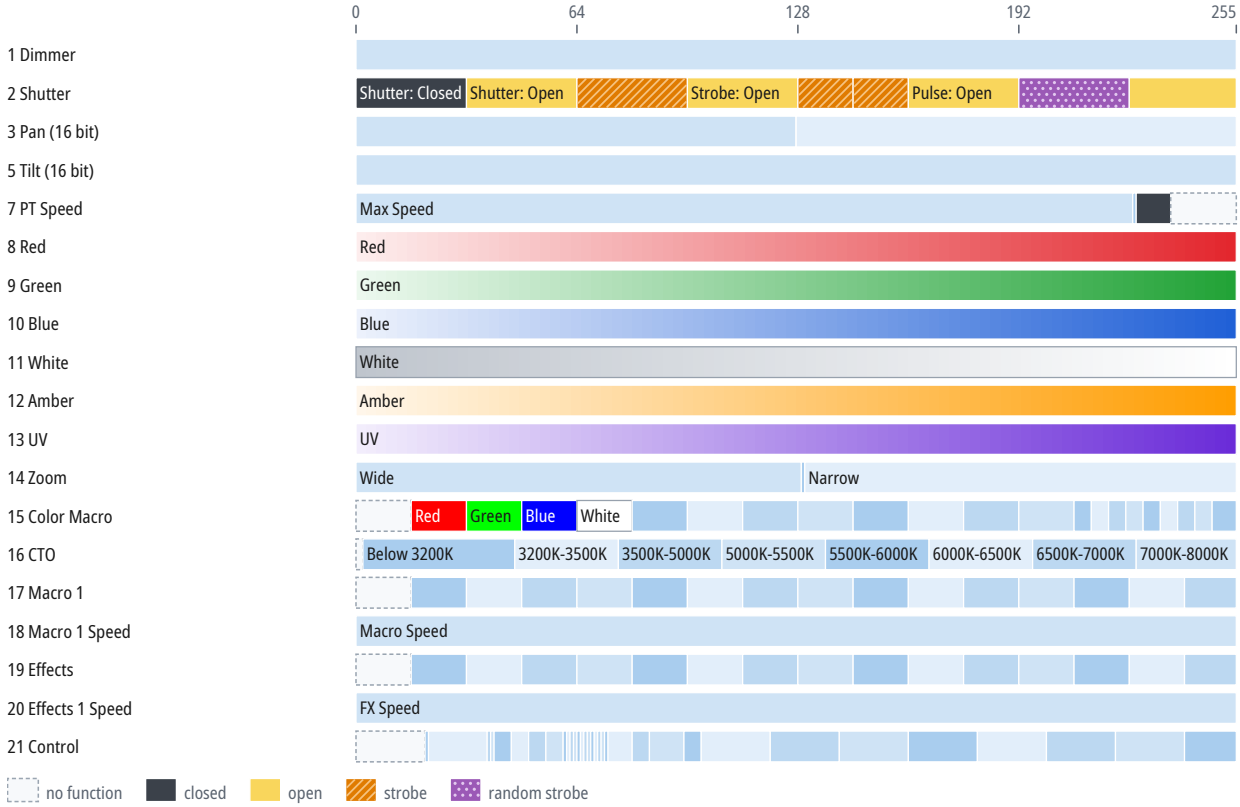
Where a DMX universe is full, the next units continue in the next universe: “U2 · 1” is address 1 in the second universe, counted from the universe of the first unit.

Mode 21CH Mode

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 “Open”. 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	0–255	
2	Shutter	0–31	Shutter: Closed
		32–63	Shutter: Open
		64–95	Strobe: Slow to Fast (0.01–8 Hz)
		96–127	Strobe: Open
		128–143	Pulse: Slow to Fast (0.01–8 Hz)
		144–159	Pulse: Fast to Slow (8–0.01 Hz)
		160–191	Pulse: Open
		192–223	Random: Slow to Fast (0.01–8 Hz)
		224–255	Random: Open
3	Pan	0–127	Pan
		128	Center
		128–255	Pan
4	Pan Fine	0–255	Fine adjustment of CH 3
5	Tilt	0–255	270°

CH	Function	DMX	Description
6	Tilt Fine	0–255	Fine adjustment of CH 5
7	PT Speed		P/T Speed
		0–224	Max Speed
		225	Min Speed
		226–235	Blackout on Movement
		236–255	No Function
8	Red	0–255	Red
9	Green	0–255	Green
10	Blue	0–255	Blue
11	White	0–255	White
12	Amber	0–255	Amber
13	UV	0–255	UV
14	Zoom	0–128	Wide
		129	Normal
		130–255	Narrow
15	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	RGB+White
		208–212	2700K
		213–217	3200K
		218–222	3500K
		223–227	5000K
		228–232	5500K
		233–237	6000K
		238–242	6500K
		243–247	7000K
		248–255	8000K
16	CTO	0–1	No Function
		2–45	Below 3200K
		46–75	3200K-3500K
		76–105	3500K-5000K
		106–135	5000K-5500K

CH	Function	DMX	Description
16	CTO (continued)	136–165	5500K-6000K
		166–195	6000K-6500K
		196–225	6500K-7000K
		226–255	7000K-8000K
17	Macro 1	0–15	No Function
		16–31	Macro 1
		32–47	Macro 2
		48–63	Macro 3
		64–79	Macro 4
		80–95	Macro 5
		96–111	Macro 6
		112–127	Macro 7
		128–143	Macro 8
		144–159	Sound Macro 1
		160–175	Sound Macro 2
		176–191	Sound Macro 3
		192–207	Sound Macro 4
		208–223	Sound Macro 5
		224–239	Sound Macro 6
		240–255	Sound Macro 7
18	Macro 1 Speed		Macro Speed
		0–255	Macro Speed
19	Effects	0–15	No Function
		16–31	Dynamic Effect 1
		32–47	Dynamic Effect 2
		48–63	Dynamic Effect 3
		64–79	Dynamic Effect 4
		80–95	Dynamic Effect 5
		96–111	Dynamic Effect 6
		112–127	Dynamic Effect 7
		128–143	Dynamic Effect 8
		144–159	Dynamic Effect 9
		160–175	Dynamic Effect 10
		176–191	Dynamic Effect 11
		192–207	Dynamic Effect 12
		208–223	Dynamic Effect 13
		224–239	Dynamic Effect 14
		240–255	Dynamic Effect 15
20	Effects 1 Speed		FX Speed
		0–255	FX Speed
21	Control	0–19	No Function
		20	Fan Auto

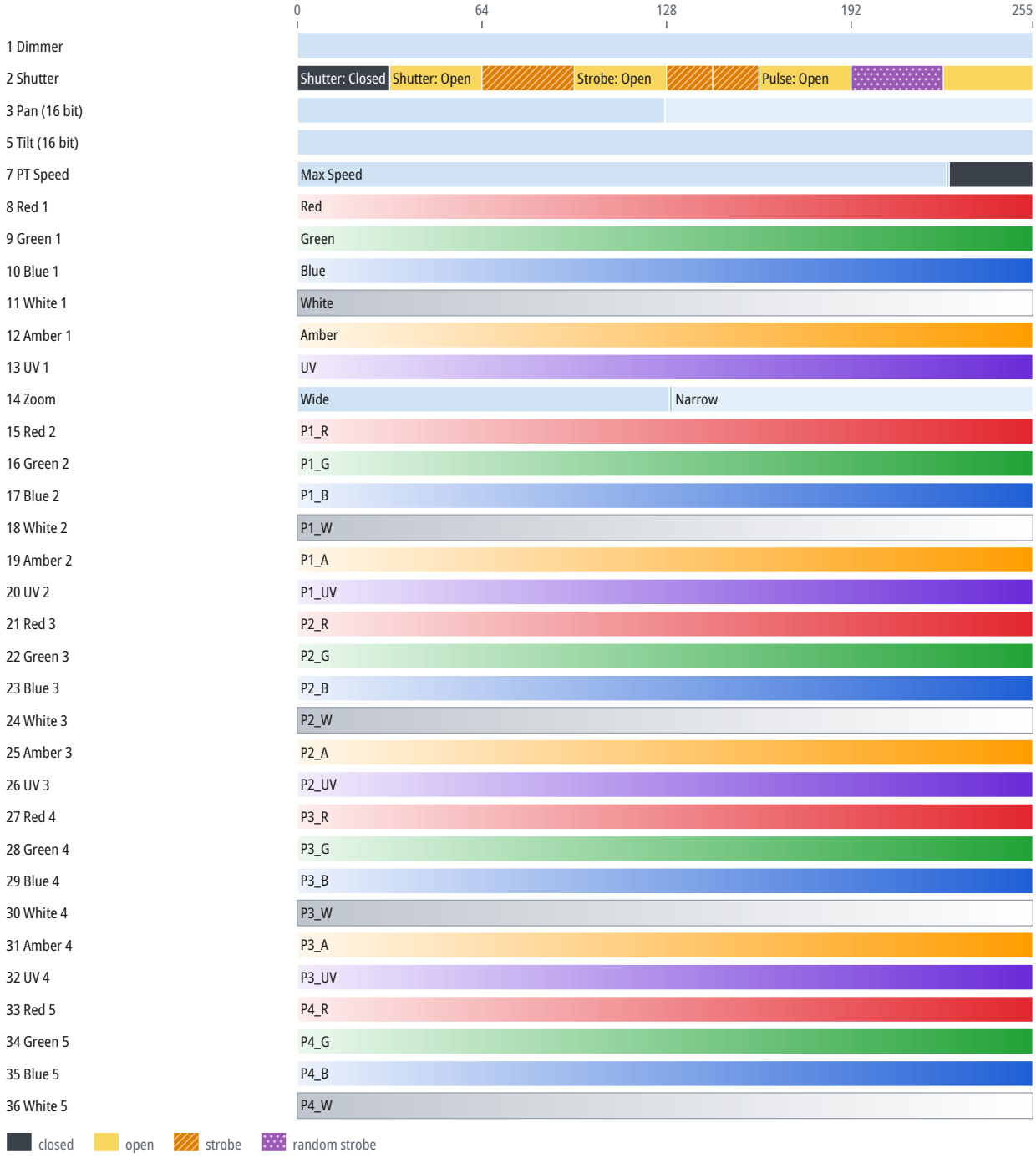
CH	Function	DMX	Description
21	Control (continued)	21–37	Fan Speed 1
		38	Fan Speed 8
		39	Silent Mode
		40–44	Linear Curve
		45–49	S-Curve
		50–54	Square Law
		55–59	Inv Square Law
		60	900 Hz
		61	1000 Hz
		62	1100 Hz
		63	1200 Hz
		64	1300 Hz
		65	1400 Hz
		66	1500 Hz
		67	2500 Hz
		68	4000 Hz
		69	5000 Hz
		70	10 KHz
		71	15 KHz
		72	20 KHz
		73–79	25 KHz
		80–84	Full Reset
		85–94	Scan Reset
		95–99	Zoom Reset
		100–119	Internal Program 1
		120–139	Internal Program 2
		140–159	Internal Program 3
		160–179	Internal Program 4
		180–199	Internal Program 5
		200–219	Internal Program 6
		220–239	Internal Program 7
		240–255	Sound Program

Mode 45CH Mode

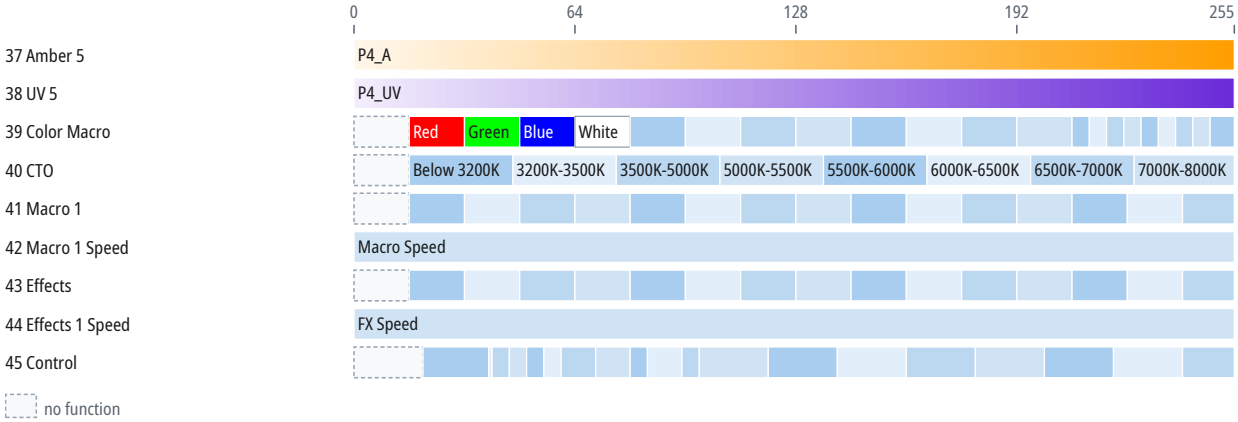
16-bit parameters use two channels, coarse and fine: value = 256 × coarse value + fine value.

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 “Open”. 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	
2	Shutter		Same as CH 2 in the mode “21CH Mode” (p. 9)
3	Pan		Same as CH 3 in the mode “21CH Mode” (p. 9)
4	Pan Fine	0–255	Fine adjustment of CH 3
5	Tilt	0–255	270°
6	Tilt Fine	0–255	Fine adjustment of CH 5
7	PT Speed		P/T Speed
		0–224	Max Speed
		225	Min Speed
		226–255	Blackout on Movement
8	Red 1	0–255	Red
9	Green 1	0–255	Green
10	Blue 1	0–255	Blue
11	White 1	0–255	White
12	Amber 1	0–255	Amber
13	UV 1	0–255	UV
14	Zoom		Same as CH 14 in the mode “21CH Mode” (p. 10)
15	Red 2	0–255	P1_R
16	Green 2	0–255	P1_G
17	Blue 2	0–255	P1_B
18	White 2	0–255	P1_W
19	Amber 2	0–255	P1_A
20	UV 2	0–255	P1_UV
21	Red 3	0–255	P2_R
22	Green 3	0–255	P2_G
23	Blue 3	0–255	P2_B
24	White 3	0–255	P2_W
25	Amber 3	0–255	P2_A
26	UV 3	0–255	P2_UV

CH	Function	DMX	Description
27	Red 4	0–255	P3_R
28	Green 4	0–255	P3_G
29	Blue 4	0–255	P3_B
30	White 4	0–255	P3_W
31	Amber 4	0–255	P3_A
32	UV 4	0–255	P3_UV
33	Red 5	0–255	P4_R
34	Green 5	0–255	P4_G
35	Blue 5	0–255	P4_B
36	White 5	0–255	P4_W
37	Amber 5	0–255	P4_A
38	UV 5	0–255	P4_UV
39	Color Macro		Same as CH 15 in the mode “21CH Mode” (p. 10)
40	CTO	0–15	No Function
		16–45	Below 3200K (3000–3882 K)
		46–75	3200K-3500K
		76–105	3500K-5000K
		106–135	5000K-5500K
		136–165	5500K-6000K
		166–195	6000K-6500K
		196–225	6500K-7000K
		226–255	7000K-8000K
41	Macro 1		Same as CH 17 in the mode “21CH Mode” (p. 11)
42	Macro 1 Speed		Same as CH 18 in the mode “21CH Mode” (p. 11)
43	Effects		Same as CH 19 in the mode “21CH Mode” (p. 11)
44	Effects 1 Speed		Same as CH 20 in the mode “21CH Mode” (p. 11)
45	Control	0–19	No Function
		20–38	Fan Auto
		39	Silent Mode
		40–44	Linear Curve
		45–49	S-Curve
		50–54	Square Law
		55–59	Inv Square Law
		60–69	900 Hz
		70–79	10 KHz
		80–84	Full Reset
		85–94	Scan Reset
		95–99	Zoom Reset
		100–119	Internal Program 1
		120–139	Internal Program 2
		140–159	Internal Program 3
		160–179	Internal Program 4

CH	Function	DMX	Description
45	Control (continued)	180–199	Internal Program 5
		200–219	Internal Program 6
		220–239	Internal Program 7
		240–255	Sound Program

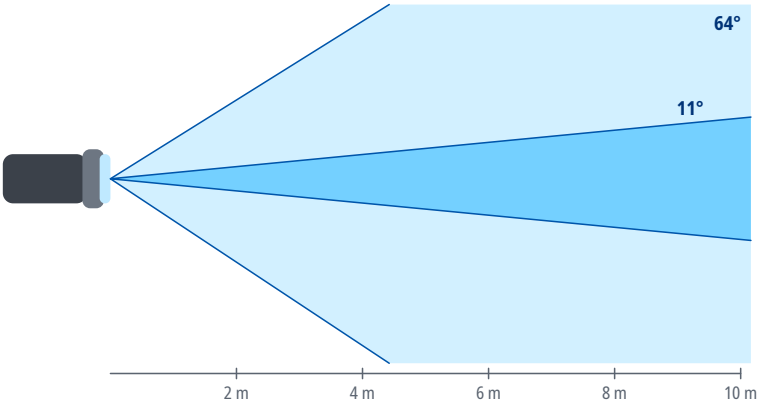
10 Technical specifications

Parameter	Value
Light source	LED
Zoom	11–64°
Pan	540°
Tilt	270°
Weight	6.2 kg
Operating temperature	1 to 40 °C

Speeds and ranges

Parameter	Value
Color temperature range	2700–8000 K
Strobe frequency	0–8 Hz

Spot diameter



Distance	Ø 11°	Ø 64°
2 m	0.39 m	2.5 m
4 m	0.77 m	5 m
6 m	1.2 m	7.5 m
8 m	1.5 m	10 m
10 m	1.9 m	12.5 m
15 m	2.9 m	18.7 m

Spot diameter square to the beam axis, calculated from the beam angle.

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.
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.

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.