DMX REFERENCE

GTD-F5 II BSW

GTD lighting



Manufacturer	GTD lighting
GDTF file	GTD_lighting_GTD-F5_II_BSW_63520.gdtf
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1 About this manual

This document describes the GTD-F5 II BSW by GTD lighting. It was compiled from the GDTF file GTD_lighting_GTD-F5_II_BSW_63520.gdtf from the GDTF-Share library.

File revision: “Rev 01”.

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 GTD lighting; 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	46 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
Standard 27 DMX	27	18	1, 28, 55, 82, …

No light? Check these channels

- Standard 27 DMX: CH 1 Shutter at 32–63 “Open” or 128–159 or 224–255


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

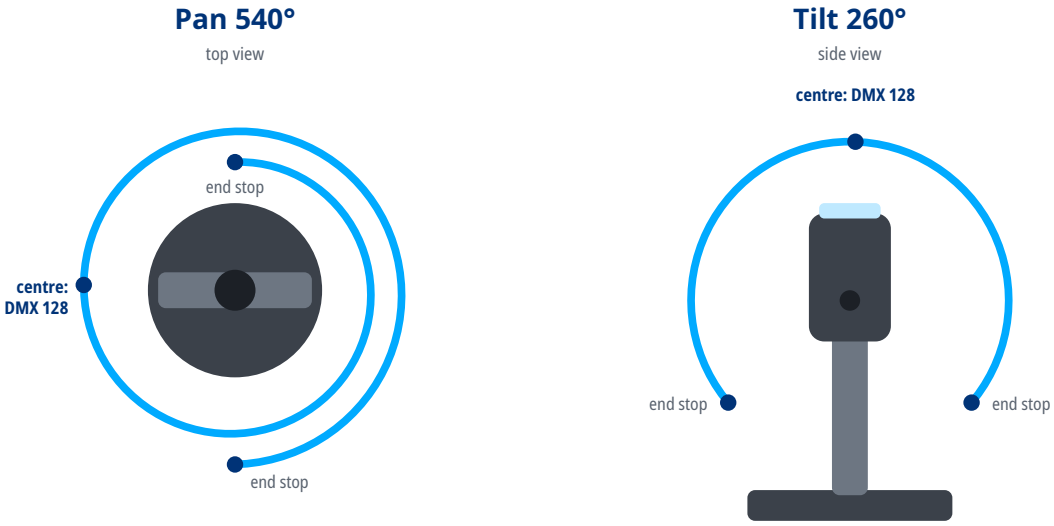
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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

Range of movement



5 Installation

⚠ WARNING

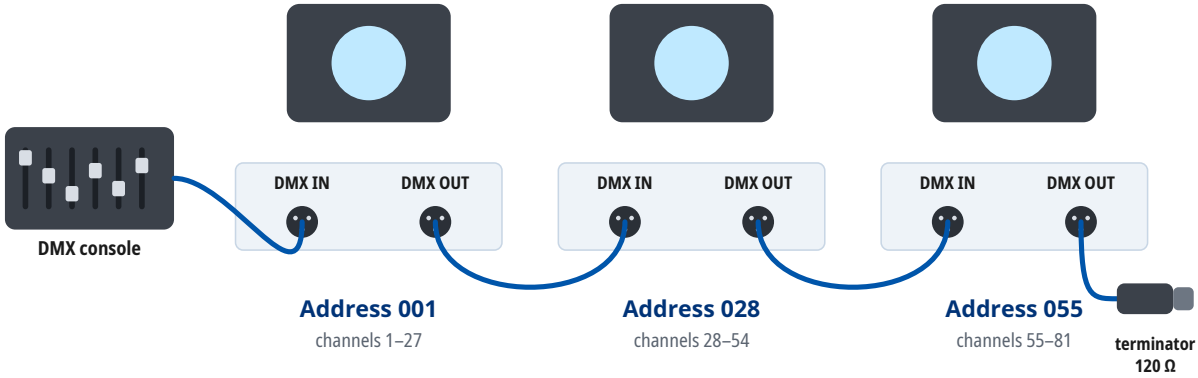
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 46 kg.
- 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 Standard 27 DMX: every unit occupies 27 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

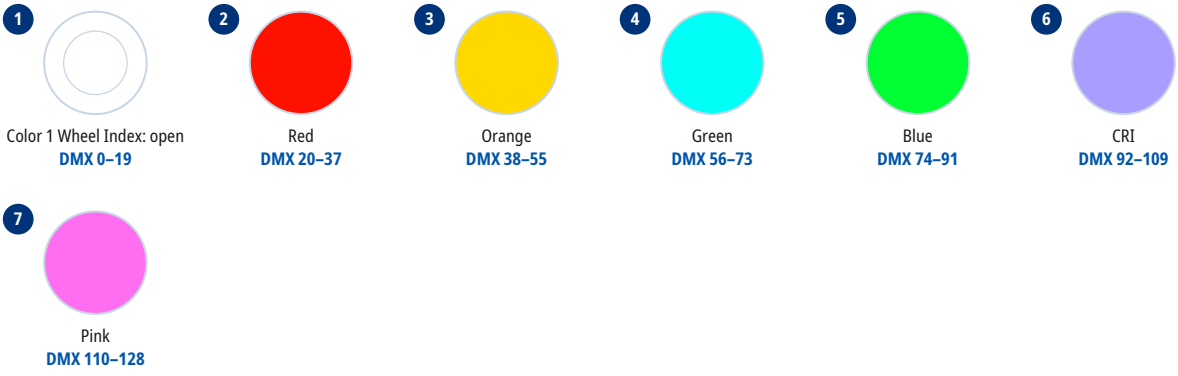
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “Standard 27 DMX”: 27.
- Choose start addresses so that the channels of individual devices do not overlap and the last 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 27 DMX”, you can use, for example, the start addresses 1, 28, 55, 82.
- 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 27 DMX 27 channels
Pan / Tilt	22, 24
Dimmer	2
Shutter / strobe	1
Color mixing	3–5
Color temperature	6
Color wheel	8, 9
Gobo wheel	10, 11
Gobo rotation	12
Prism	16–20
Frost	21
Zoom	15
Focus	14
Animation wheel	13
Effects / macros	7, 20

Color wheel 1



Gobo wheel 1

1
Fixed Gobo Wheel Index: Open
DMX 0–10

2 
Gobo1
DMX 11–13

3 
Gobo2
DMX 14–16

4 
Gobo3
DMX 17–19

5 
Gobo4
DMX 20–22

6 
Gobo5
DMX 23–25

7 
Gobo6
DMX 26–28

8 
Gobo7
DMX 29–31

9 
Gobo 8
DMX 32–34

10 
Gobo 9
DMX 35–37

11 
Gobo 10
DMX 38–40

12 
Gobo 11
DMX 41–43

13 
Gobo 12
DMX 44–46

14 
Gobo13
DMX 47–50

Gobo wheel 2

1
Rotate Gobo Wheel Index: Open
DMX 0–4

2 
Gobo1
DMX 5–10

3 
Gobo2
DMX 11–14

4 
Gobo3
DMX 15–19

5 
Gobo4
DMX 20–24

6 
Gobo5
DMX 25–29

7 
Gobo6
DMX 30–34

8 
Gobo7
DMX 35–39

9 
Gobo8
DMX 40–48

Prism 1

1
Open
DMX 0–31

2 
24 facets
24 - facet rotating prism
DMX 32–255

Color wheel 2



1 Color 2 Wheel Index: open
DMX 0–19

2 Magenta
DMX 20–37

3 Blue
DMX 38–55

4 Half CTO
DMX 56–73

5 Full CTO
DMX 74–91

6 CTB
DMX 92–109

7 UV
DMX 110–128

Prism 2

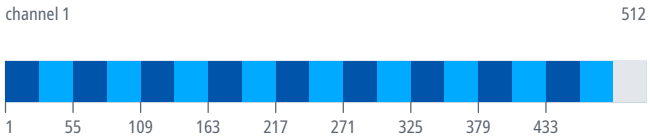


1 Open
DMX 0–31

2 4 facets
8 - facet rotating prism
DMX 32–255

9 DMX channels

Units in one DMX universe



Standard 27 DMX
27 channels

up to 18 units
last address 460

Start addresses of 20 units in the mode “Standard 27 DMX”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	136	11	271	16	406
2	28	7	163	12	298	17	433
3	55	8	190	13	325	18	460
4	82	9	217	14	352	19	U2 · 1
5	109	10	244	15	379	20	U2 · 28

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 27 DMX

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 Shutter at 32–63 “Open” or 128–159 or 224–255. The GDTF file gives these values for a console's Highlight function: CH 2 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Shutter	0–31	Shutter: Close
		32–63	Shutter: Open
		64	Strobe: Min
		65–126	Strobe: Min ... Max
		127	Strobe: Max
		128–159	Strobe: Open 1
		160	Random: Min
		161–222	Random: Min ... Max
		223	Random: Max
		224–255	Random: Open 2

CH	Function	DMX	Description
2	Dimmer		Dimmer intensity
		0	Min
		1–254	Min ... max
		255	Max
3	Cyan	0	Min
		1–254	Min ... Max
		255	Max
4	Magenta	0	Min
		1–254	Min ... Max
		255	Max
5	Yellow	0	Min
		1–254	Min ... Max
		255	Max
6	CTO	0	CTO Change
		1–255	CTO 1
7	Color Macro	0–15	Color Macro: closed
		16–135	Color macro
		136–255	Color marc random
8	Colors	0–19	Color 1 Wheel Index: open
		20–37	Red
		38–55	Orange
		56–73	Green
		74–91	Blue
		92–109	CRI
		110–127	Pink
		128	CW
		129–186	CW ... Max CW
		187	Max CW
		188–195	Color Wheel Spin: Stop
		196	CCW
		197–254	CCW ... Max CCW
		255	Max CCW
9	Colors 2	0–19	Color 2 Wheel Index: open
		20–37	Magenta
		38–55	Blue
		56–73	Half CTO
		74–91	Full CTO
		92–109	CTB
		110–127	UV
		128	CW
		129–186	CW ... Max CW
		187	Max CW

CH	Function	DMX	Description
9	Colors 2 (continued)	188–195	Color Wheel Spin: Stop
		196	CCW
		197–254	CCW ... Max CCW
		255	Max CCW
10	Gobo	0–10	Fixed Gobo Wheel Index: Open
		11–13	Gobo1
		14–16	Gobo2
		17–19	Gobo3
		20–22	Gobo4
		23–25	Gobo5
		26–28	Gobo6
		29–31	Gobo7
		32–34	Gobo 8
		35–37	Gobo 9
		38–40	Gobo 10
		41–43	Gobo 11
		44–46	Gobo 12
		47–49	Gobo 13
		50–55	Gobo1 Shaking Index
		56–61	Gobo2 Shaking Index
		62–67	Gobo3 Shaking Index
		68–73	Gobo4Shaking Index
		74–79	Gobo5Shaking Index
		80–85	Gobo6 Shaking Index
		86–91	Gobo7 Shaking Index
		92–97	Gobo8 Shaking Index
		98–103	Gobo9 Shaking Index
		104–109	Gobo10 Shaking Index
		110–115	Gobo11 Shaking Index
		116–121	Gobo12 Shaking Index
		122–127	Gobo13 Shaking Index
		128	CW
		129–187	Max CW
		188–195	Fixed Gobo Wheel Spin: Stop
		196	CCW
		197–255	Max CCW
11	Gobo 2	0–4	Rotate Gobo Wheel Index: Open
		5–10	Gobo1
		11–14	Gobo2
		15–19	Gobo3
		20–24	Gobo4
		25–29	Gobo5

CH	Function	DMX	Description
11	Gobo 2 (continued)	30–34	Gobo6
		35–39	Gobo7
		40–47	Gobo8
		48–57	Gobo1 Shaking Index
		58–67	Gobo2 Shaking Index
		68–77	Gobo3 Shaking Index
		78–87	Gobo4 Shaking Index
		88–97	Gobo5 Shaking Index
		98–107	Gobo6 Shaking Index
		108–117	Gobo7 Shaking Index
		118–127	Gobo8 Shaking Index
		128	CW
		129–187	Max CW
		188–195	Spin >>>: Stop
		196–254	CCW
		255	Max CCW
12	Gobo 2 Rotation	0	0
		1–126	0 ... 360
		127	360
		128	CW
		129–186	CW ... Max CW
		187	Max CW
		188–195	Gobo 2 Pos Rotate: Stop
		196	CCW
		197–254	CCW ... Max CCW
		255	Max CCW
13	Animation Wheel Rotation	0–127	Animation index
		128	Slow CW
		129–255	Max CW
14	Focus	0	Min
		1–254	Min ... max
		255	Max
15	Zoom	0	Min
		1–254	Min ... max
		255	Max
16	Prism	0–31	Open
		32–255	24 - facet rotating prism
17	Prism Rotation Speed	0	0
		1–126	0 ... 360
		127	360
		128	CW
		129–186	CW ... Max CW

CH	Function	DMX	Description
17	Prism Rotation Speed (continued)	187	Max CW
		188–195	Prism 1 Pos Rotate: Stop
		196	CCW
		197–254	CCW ... Max CCW
		255	Max CCW
18	Prism 2	0–31	Open
		32–255	8 - facet rotating prism
19	Prism 2 Rotation Speed	0	0
		1–126	0 ... 360
		127	360
		128	CW
		129–186	CW ... Max CW
		187	Max CW
		188–195	Prism 2 Pos Rotate: Stop
		196	CCW
		197–254	CCW ... Max CCW
		255	Max CCW
20	Prism Macro	0–255	Prism Macro
21	Frost	0	Min
		1–254	Min ... max
		255	Max
22	Pan	0–127	Min ... center
		128–255	Center ... max
		255	Max
23	Pan Fine	0–255	Fine adjustment of CH 22
24	Tilt	0–127	Min ... center
		128–255	Center ... max
		255	Max
25	Tilt Fine	0–255	Fine adjustment of CH 24
26	Speed Pan/Tilt	0	Max
		1–254	Max ... min
		255	Min
27	Control	0–9	Safety
		10–19	Open 5 s
		20–29	Close 5 s
		30–39	Color Half
		40–49	Color Random
		50–59	Reset All
		60–69	Reset Position
		70–79	Reset Color
		80–89	Reset Gobo
		90–99	Reset Shutter

CH	Function	DMX	Description
27	Control (continued)	100–109	Reset Other
		110–119	Program 1
		120–129	Program 2
		130–139	Program 3
		140–149	Program 4
		150–159	Program 5
		160–169	Program 6
		170–179	Program 7
		180–189	Program 8
		190–199	Program 9
		200–209	Program 10
		210–219	Reserved
		220–255	No Function

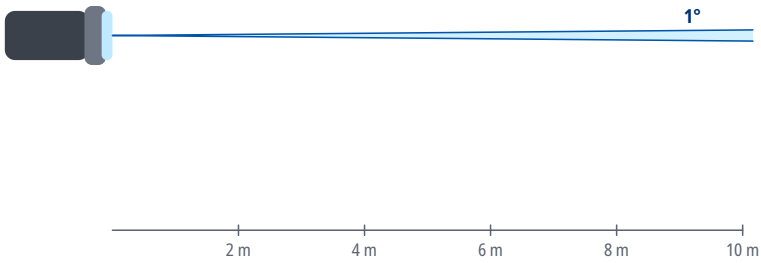
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	1,400 W
Luminous flux	35,000 lm
Color temperature	6,500 K
Color rendering index (CRI)	92
Optics	
Beam angle	1°
Movement	
Pan	540°
Tilt	260°
Dimensions and construction	
Weight	46 kg
Operating environment	
Operating temperature	-25 to 45 °C

Speeds and ranges

Parameter	Value
Color temperature range	2700–6000 K
Gobo 2 rotation	up to 360 °/s (60 rpm)
Prism 1 rotation	up to 360 °/s (60 rpm)
Prism 2 rotation	up to 360 °/s (60 rpm)

Spot diameter



Distance	Ø 1°
2 m	0.03 m
4 m	0.07 m
6 m	0.1 m
8 m	0.14 m
10 m	0.17 m
15 m	0.26 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.