DMX REFERENCE

Tornado SF180

SPARK FABRICA



Manufacturer	SPARK FABRICA
GDTF file	SPARK_FABRICA_Tornado_SF180_133372.gdtf
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1 About this manual

This document describes the Tornado SF180 by SPARK FABRICA. It was compiled from the GDTF file SPARK_FABRICA_Tornado_SF180_133372.gdtf from the GDTF-Share library.

File revision: “mar 2026 V2”.

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 SPARK FABRICA; 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	32 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
6Ch	6	85	1, 7, 13, 19, ...

No light? Check these channels

- 6Ch: CH 3 Shutter 1 at 255 “On”; CH 6 Dimmer above 48



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

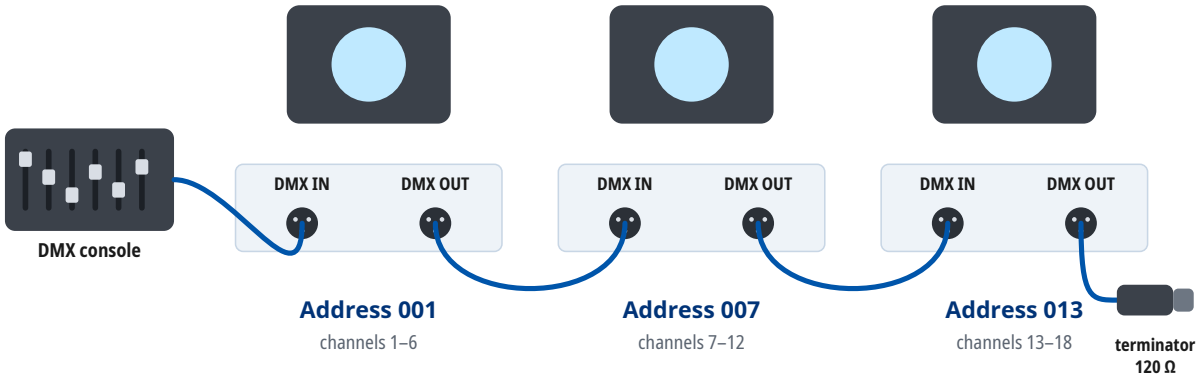
⚠ **WARNING**

- 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: 32 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 6Ch: every unit occupies 6 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 “6Ch”: 6.
- 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 “6Ch”, you can use, for example, the start addresses 1, 7, 13, 19.
- 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

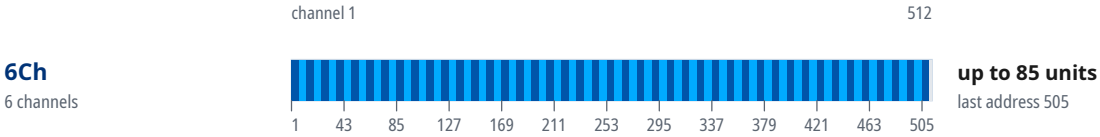
	6Ch 6 channels
Pan / Tilt	1
Dimmer	6
Shutter / strobe	3
Gobo wheel	5

Gobo wheel

1	Gobo

8 DMX channels

Units in one DMX universe



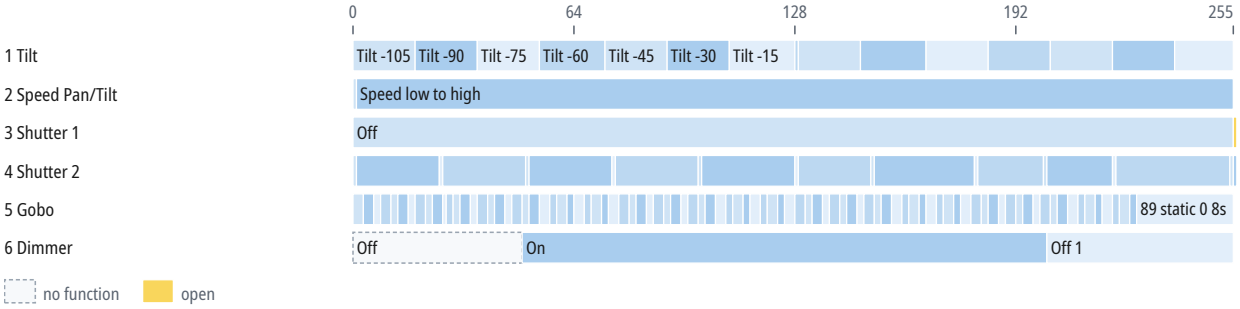
Start addresses of 20 units in the mode “6Ch”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	31	11	61	16	91
2	7	7	37	12	67	17	97
3	13	8	43	13	73	18	103
4	19	9	49	14	79	19	109
5	25	10	55	15	85	20	115

Mode 6Ch

If the device receives DMX in this mode but gives no light, check these channels: CH 3 Shutter 1 at 255 “On”; CH 6 Dimmer above 48.

Channel functions at a glance



CH	Function	DMX	Description
1	Tilt	0–17	Tilt -105 (14°)
		18–35	Tilt -90 (14°)
		36–53	Tilt -75 (14°)
		54–72	Tilt -60 (14°)
		73–90	Tilt -45 (14°)
		91–108	Tilt -30 (14°)
		109–127	Tilt -15 (14°)
		128	Tilt 0
		129–146	Tilt 15 (14°)
		147–165	Tilt 30 (14°)
		166–183	Tilt 45 (14°)
		184–201	Tilt 60 (14°)
		202–219	Tilt 75 (14°)
		220–237	Tilt 90 (14°)

CH	Function	DMX	Description
1	Tilt (continued)	238–255	Tilt 105 (14°)
2	Speed Pan/Tilt	0	Max
		1–255	Speed low to high
3	Shutter 1	0–254	Off
		255	On
4	Shutter 2	0	Permanent
		1–24	Time 0000-0250
		25	0250 ms time
		26–49	Time 0250-0500
		50	0500 ms time
		51–74	Time 0500-0750
		75	0750 ms Time
		76–99	Time 0750-1000
		100	1000 ms Time
		101–127	Time 1000-1280
		128	1280 ms Time
		129–149	Time 1280-1500
		150	1500 ms Time
		151–179	Time 1500-1800
		180	1800 ms Time
		181–199	Time 1800-2000
		200	2000 Time
		201–219	Time 2000-2220
		220	2200 ms Time
		221–253	Time 2200-2540
		254	2540 ms Time
		255	Permanent#2
5	Gobo	0–2	Open
		3–5	01 fix -105 short
		6–7	02 fix -90 short
		8–10	03 fix -75 short
		11–12	04 fix -60 short
		13–15	05 fix -45 short
		16–17	06 fix -30 short
		18–20	07 fix -15 short
		21–22	08 fix 000 short
		23–25	09 fix 15 short
		26	09 fix 15 short ... 10 fix 30 short
		27–28	10 fix 30 short
		29–30	11 fix 45 short
		31–33	12 fix 60 short
		34–35	13 fix 75 short

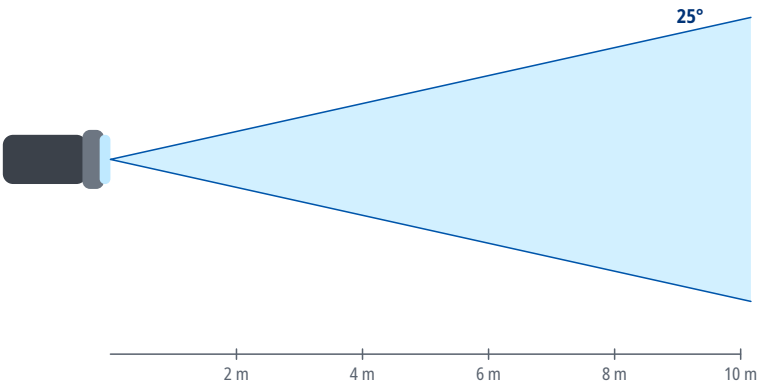
CH	Function	DMX	Description
5	Gobo (continued)	36–38	14 fix 90 short
		39–40	15 fix 105 short
		41–43	16 fix -105 long
		44–45	17 fix -90 long
		46–48	18 fix -75 long
		49–50	19 fix -60 long
		51–53	20 fix -45 long
		54–56	21 fix -30 long
		57–58	22 fix -15 long
		59–61	23 fix 000 long
		62–63	24 fix 15 long
		64–68	25 fix 30 long
		69–71	27 fix 60 long
		72–73	28 fix 75 long
		74–76	29 fix 90 long
		77–79	30 fix 105 long
		80–81	31 Stepshort 15p LR 2660ms
		82–84	32 Stepshort 15p RL 2660ms
		85–86	33 Stepshort 3p LMR 920ms
		87–89	34 Stepshort 3p RML 920ms
		90–91	35 Stepshort 2p LR 750ms
		92–94	36 Stepshort 2p RL 750ms
		95–96	37 Stepshort 5p LR 1270ms
		97–99	38 Stepshort 5p LR 1270ms
		100–101	39 Stepshort 5p MLRLR 1600ms
		102–104	40 Stepshort 5p MRLRL 1600ms
		105–107	41 Steplong 15p LR 7780ms
		108–109	42 Steplong 15p RL 7780ms
		110–112	43 Steplong 3p LMR 1820ms
		113–114	44 Steplong 3p RML 1820ms
		115–117	45 Steplong 2p LR 1250ms
		118–119	46 Steplong 2P RL 1250ms
		120–122	47 Steplong 5p LR 2680ms
		123–124	48 Steplong 5p RL 2680ms
		125–127	49 Steplong 5p MLRLR 2880ms
		128–130	50 Steplong 5p MRLRL 2088ms
		131–132	51 waveMD LR 1870ms
		133–135	52 waveMD RL 1870ms
		136–137	53 waveLG LR 4080ms
		138–140	54 waveLG RL 4080ms
		141–142	55 waveMD ML 2090ms
		143–145	56 waveMD MR 2090ms

CH	Function	DMX	Description
5	Gobo (continued)	146–147	57 waveMD LM 2310ms
		148–150	58 waveMD RM 2310ms
		151–152	59 waveSRT MR 0990ms
		153–155	60 waveSRT ML 0990ms
		156–158	61 waveSRT LM 1080ms
		159–160	62 waveSRT RM 1080ms
		161–163	63 waveSRT LR 0930ms
		164–165	64 waveSRT RL 0930ms
		166–168	65 waveLG LR 1630ms
		169–170	66 waveLG RL 1630ms
		171–173	67 waveSRT MR 1550ms
		174–175	68 waveSRT RM 1550ms
		176–178	69 waveLG MR 3240ms
		179–181	70 waveLG RM 3240ms
		182–183	71 waveSRT ML 1540ms
		184–186	72 waveSRT LM 1540ms
		187–188	73 waveLG ML 3240ms
		189–191	74 waveLG LM 3240ms
		192–193	75 waveSHT LR 1980ms
		194–198	76 WaveSRT RL 1980ms
		199–201	78 waveSRT RL 2320ms
		202–203	79 waveSRT MLR 930ms
		204–206	80 waveSRT MRL 930ms
		207–209	81 WaveSRT LR 1280ms
		210–211	81 WaveSRT RL 1280ms
		212–214	83 waveMD MR 1700ms
		215–216	84 WaveSRT RM 1280ms
		217–219	85 WaveMD ML 1600ms
		220–221	86 WaveMD LM 1600ms
		222–224	87 WaveLG LR 3060ms
		225–226	88 WaveLG RL 3060ms
		227–255	89 static 0 8s
6	Dimmer	0–48	Off
		49–200	On
		201–255	Off 1

9 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	1,000 W
Luminous flux	10,000 lm
Color temperature	6,000 K
Color rendering index (CRI)	100
Optics	
Beam angle	25°
Dimensions and construction	
Weight	32 kg
Operating environment	
Operating temperature	0 to 40 °C

Spot diameter



Distance	Ø 25°
2 m	0.89 m
4 m	1.8 m
6 m	2.7 m
8 m	3.5 m
10 m	4.4 m
15 m	6.7 m

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

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.