DMX REFERENCE

clara s trf

TRF clara S1

TRF 3am



Manufacturer	TRF 3am
GDTF file	TRF_3am_clara_s_trf_79429.gdtf
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1 About this manual

This document describes the TRF clara S1 by TRF 3am. It was compiled from the GDTF file TRF_3am_clara_s_trf_79429.gdtf from the GDTF-Share library.

File revision: “TRF 3AM S”.

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 TRF 3am; 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	16.8 kg

DMX modes

Mode	Channels	Units in one universe	First start addresses
16Channel	16	32	1, 17, 33, 49, ...

No light? Check these channels

- 16Channel: CH 7 Shutter at 105–109, 208–212 or 252–255 “Open”; CH 8 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.

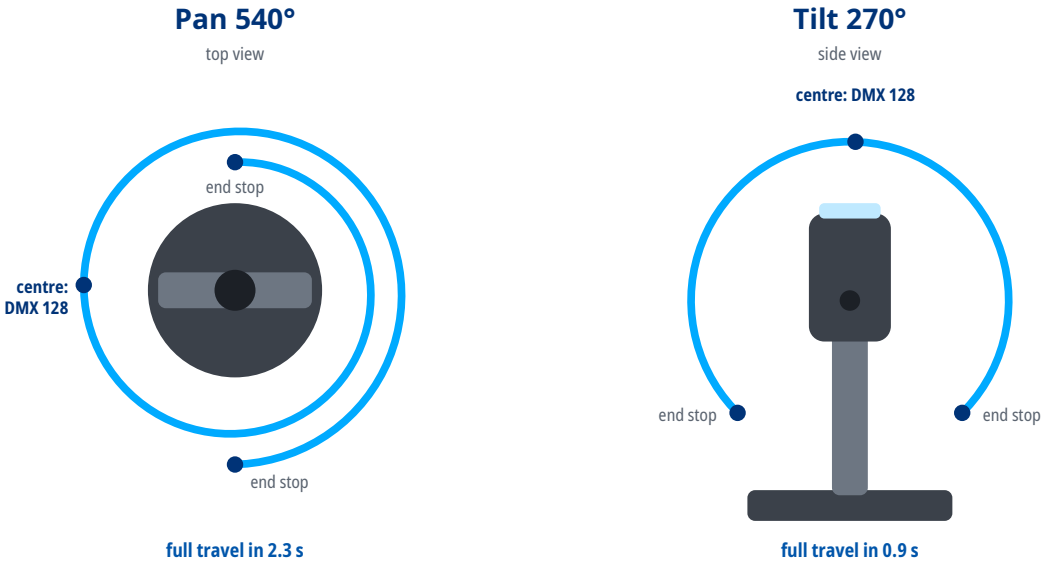
⚠ CAUTION

- 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



Full-travel times as stated in the GDTF file.

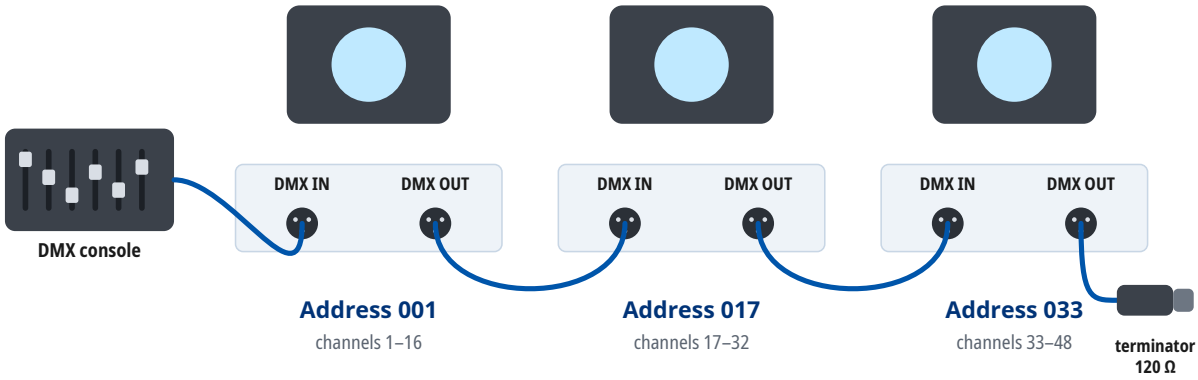
5 Installation

> ⚠ **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: 16.8 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 16Channel: every unit occupies 16 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 “16Channel”: 16.
- 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 “16Channel”, you can use, for example, the start addresses 1, 17, 33, 49.
- 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

	16Channel 16 channels
Pan / Tilt	1, 2
Dimmer	8
Shutter / strobe	7
Color wheel	9, 10
Gobo wheel	11
Prism	12, 14, 15
Frost	6
Focus	13

Color wheel

1 Color 1: Open
DMX 0–10

2 Red/half
DMX 11–15

3 Red
DMX 16–22

4 Green half
DMX 23–25

5 Green
DMX 26–29

6 Blue half
DMX 30–34

7 Blue
DMX 35–39

8 /bueYellow
DMX 40–46

9 Yellow
DMX 47–50

10 Yellow cyant
DMX 51–57

11 Light blue
DMX 58–59

12 cyan/light green
DMX 60–65

13 Light green
DMX 66–71

14 Light green/orange
DMX 72–75

15 Orange
DMX 76–79

16 orange/pink
DMX 80–86

17 Pink
DMX 87–90

18 pink/warm
DMX 91–95

19 Warm
DMX 96–99

20 warm/purple
DMX 100–105

21 Purple
DMX 106–116

22 Light orange
DMX 117–121

23 Light orange magenta
DMX 122–126

24 Magenta
DMX 127–129

25 Magenta lemonade
DMX 130–136

26 Lemon
DMX 137–140

27 yellow/white
DMX 141–151

Gobo wheel

1 Gobo 1: Open
DMX 0–3



2 FG1
DMX 4–7



3 FG2
DMX 8–11



4 FG3
DMX 12–15



5 FG4
DMX 16–19



6 FG5
DMX 20–23



7 FG6
DMX 24–27



8 FG7
DMX 28–31



9 FG8
DMX 32–35



10 FG9
DMX 36–39



11 FG10
DMX 40–43



12 FG11
DMX 44–47



13 FG12
DMX 48–51



14 FG13
DMX 52–55



15 FG14
DMX 56–59



16 FG15
DMX 60–63



17 FG16
DMX 64–67



18 FG17
DMX 68–72



Prism 1

1 Open
DMX 0

2 12 facets
12 facet-Prism
DMX 255



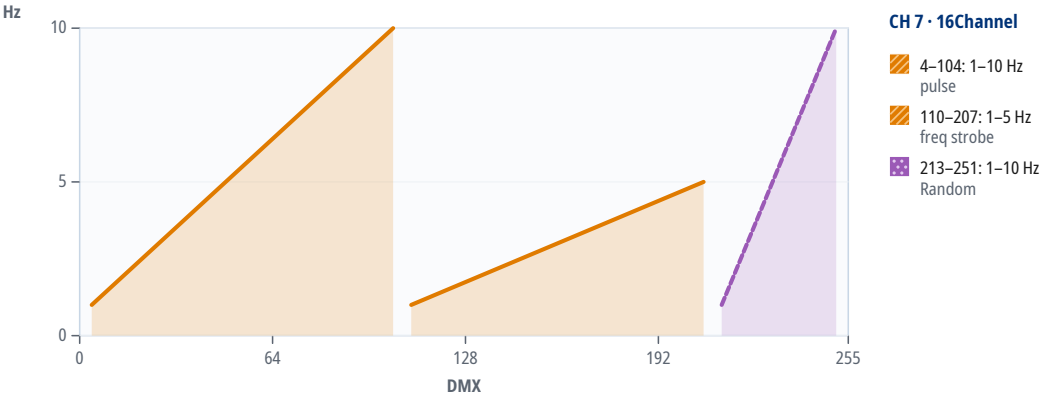
Prism 2

1 Open
DMX 0

2 24 facets
48 facet-Prism
DMX 255

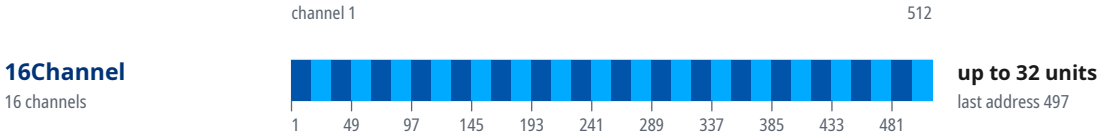


Strobe rate



9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “16Channel”

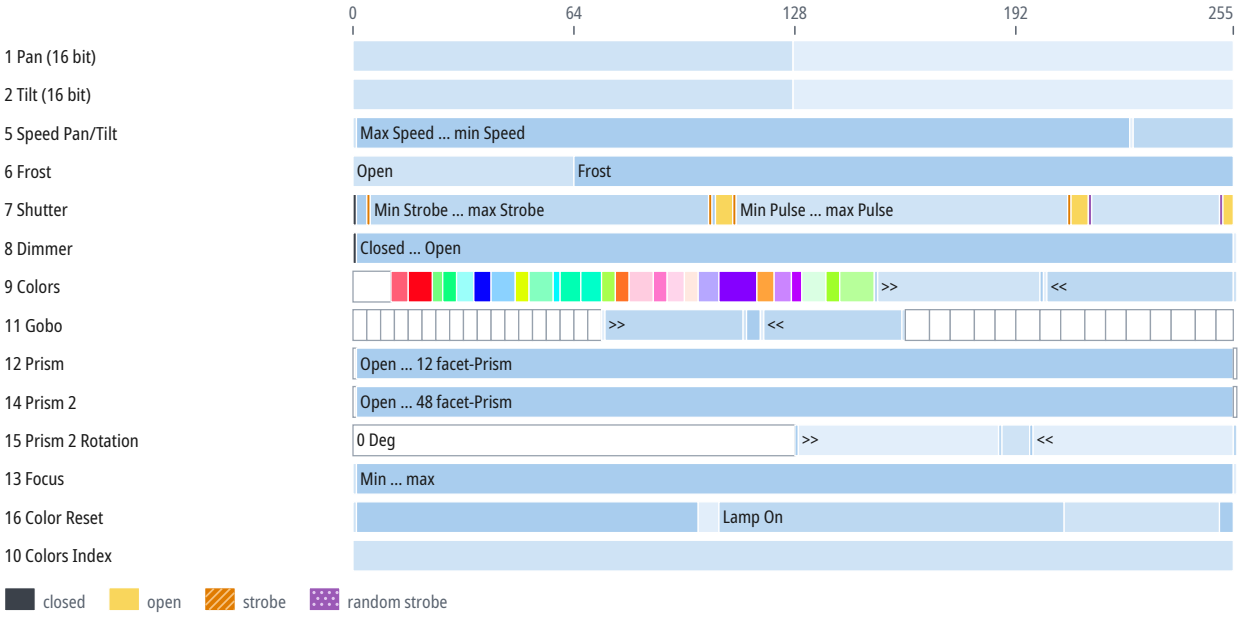
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	81	11	161	16	241
2	17	7	97	12	177	17	257
3	33	8	113	13	193	18	273
4	49	9	129	14	209	19	289
5	65	10	145	15	225	20	305

Mode 16Channel

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 7 Shutter at 105–109, 208–212 or 252–255 “Open”; CH 8 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 7 Shutter 255, CH 8 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Pan	0–127	Pan 1
		128	Center
		128–255	Pan 1
2	Tilt	0–127	Tilt 1
		128	Center

CH	Function	DMX	Description
2	Tilt (continued)	128–255	Tilt 1
3	Pan Fine	0–255	Fine adjustment of CH 1
4	Tilt Fine	0–255	Fine adjustment of CH 2
5	Speed Pan/Tilt	0	Max Speed
		1–224	Max Speed ... min Speed
		225	Min Speed
		226–255	Position MSpeed 1
6	Frost	0–63	Open
		64–255	Frost
7	Shutter	0	Dark: Closed
		1–3	Dark
		4	Min Strobe
		5–102	Min Strobe ... max Strobe
		103	Max Strobe
		104	Pulse
		105–109	White: Open
		110	Min Pulse
		111–206	Min Pulse ... max Pulse
		207	Max Pulse
		208–212	White: Open
		213	Min Rnd
		214–250	Min Rnd ... maxRnd
		251	maxRnd
		252–255	White: Open
8	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
9	Colors	0–10	Color 1: Open
		11–15	Red/half
		16–22	Red
		23–25	Green half
		26–29	Green
		30–34	Blue half
		35–39	Blue
		40–46	/bueYellow
		47–50	Yellow
		51–57	Yellow cyant
		58–59	Light blue
		60–65	cyan/light green
		66–71	Light green
		72–75	Light green/orange
		76–79	Orange

CH	Function	DMX	Description
9	Colors (continued)	80–86	orange/pink
		87–90	Pink
		91–95	pink/warm
		96–99	Warm
		100–105	warm/purple
		106–116	Purple
		117–121	Light orange
		122–126	Light orange magenta
		127–129	Magenta
		130–136	Magenta lemonade
		137–140	Lemon
		141–150	yellow/white
		151	>>> (733.9–720 °/s)
		152–198	>> (720–3.6 °/s)
		199	>
		200	<
		201–254	<< (3.6–720 °/s)
		255	<<<
10	Colors Index	0–255	
11	Gobo	0–3	Gobo 1: Open
		4–7	FG1
		8–11	FG2
		12–15	FG3
		16–19	FG4
		20–23	FG5
		24–27	FG6
		28–31	FG7
		32–35	FG8
		36–39	FG9
		40–43	FG10
		44–47	FG11
		48–51	FG12
		52–55	FG13
		56–59	FG14
		60–63	FG15
		64–67	FG16
		68–71	FG17
		72	>>>
		73–112	>> (720–3.6 °/s)
		113	>
		114–117	Wheel Spin: Stop
		118	<

CH	Function	DMX	Description
11	Gobo (continued)	119–158	<< (3.6–720 °/s)
		159	<<<
		160–166	FG2_
		167–172	FG3_
		173–179	FG4_
		180–185	FG5_
		186–191	FG6_
		192–198	FG7_
		199–204	FG8_
		205–211	FG9_
		212–217	FG10_
		218–223	FG11_
		224–230	FG12_
		231–236	FG13_
		237–243	FG14_
		244–249	FG15_
		250–255	FG16_
12	Prism	0	Open
		1–254	Open ... 12 facet-Prism
		255	12 facet-Prism
13	Focus	0	Min
		1–254	Min ... max
		255	Max
14	Prism 2	0	Open
		1–254	Open ... 48 facet-Prism
		255	48 facet-Prism
15	Prism 2 Rotation	0–127	0 Deg (399°)
		128	>>>
		129–186	>> (480–2.4 °/s)
		187	>
		188–195	Prism 2 Pos Rotate: Stop
		196	<
		197–254	<< (2.4–480 °/s)
		255	<<<
16	Color Reset	0	Normal
		1–99	Control 1 1
		100–105	Lamp Off
		106–205	Lamp On
		206–250	Lamp Control
		251–255	Reset all

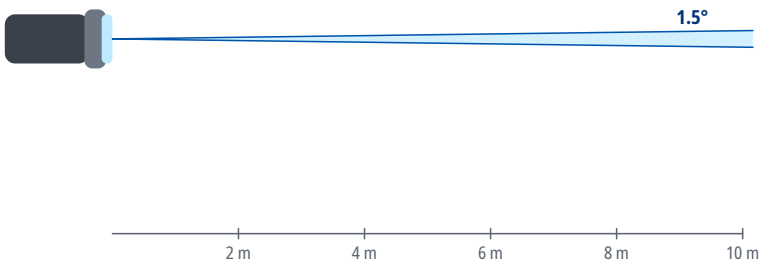
10 Technical specifications

Parameter	Value
Light	
Light source	LED
LED power	280 W
Luminous flux	6,500 lm
Color temperature	7,000 K
Color rendering index (CRI)	75
Optics	
Beam angle	1.5°
Movement	
Pan	540°
Tilt	270°
Control	
DMX connection	3-pin XLR IN/OUT
Dimensions and construction	
Weight	16.8 kg
Operating environment	
Operating temperature	-10 to 45 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–10 Hz
Color wheel rotation	up to 720 °/s (120 rpm)
Gobo wheel rotation	up to 720 °/s (120 rpm)
Prism 2 rotation	up to 480 °/s (80 rpm)

Spot diameter



Distance	Ø 1.5°
2 m	0.05 m
4 m	0.1 m
6 m	0.16 m
8 m	0.21 m
10 m	0.26 m
15 m	0.39 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.