DMX REFERENCE

Smart650

Stan



Manufacturer	Stan
GDTF file	Stan_Smart650_142437.gdtf
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1 About this manual

This document describes the Smart650 by Stan. It was compiled from the GDTF file Stan_Smart650_142437.gdtf from the GDTF-Share library.

File revision: “V1.2”.

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 Stan; 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	16.5 kg

DMX modes

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

No light? Check these channels

- 16ch: CH 2 Shutter at 252–255 “Open”; CH 3 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

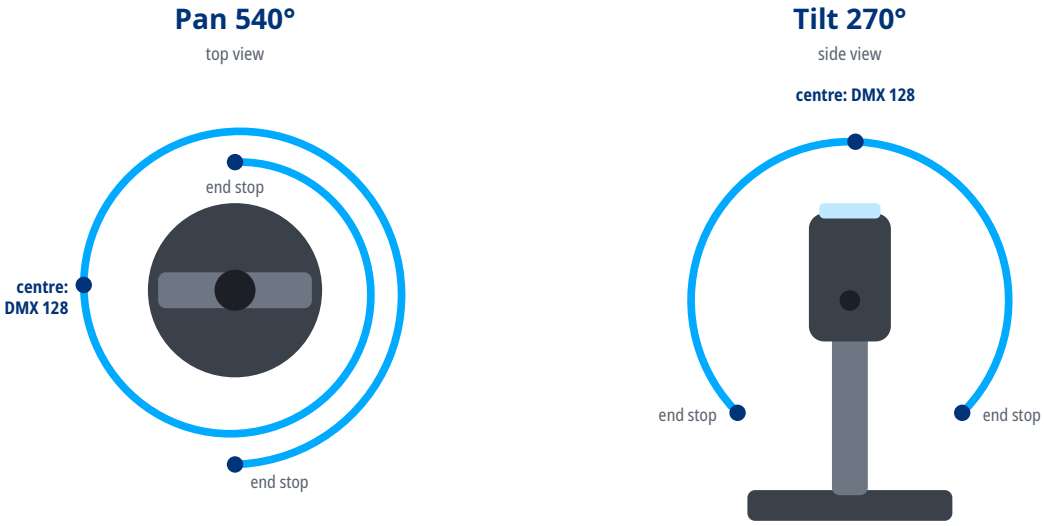
- Strobe and fast flashing light effects can trigger epileptic seizures in susceptible people (photosensitive epilepsy) and can cause nausea or disorientation.
- Inform the audience and performers in advance that strobe effects will be used, for example with a notice at the entrance, and do not use them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



5 Installation

⚠ WARNING

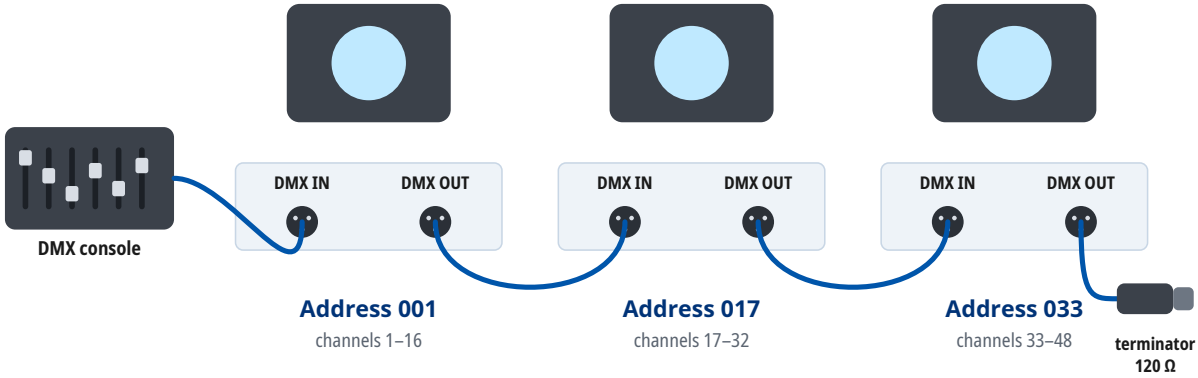
- Rigging must be carried out only by qualified persons in accordance with applicable regulations, in particular those for work at height.
- The supporting structure and fixings must safely carry the weight of all suspended devices; verify their load capacity in advance.
- Weight of the device: 16.5 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 16ch: 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

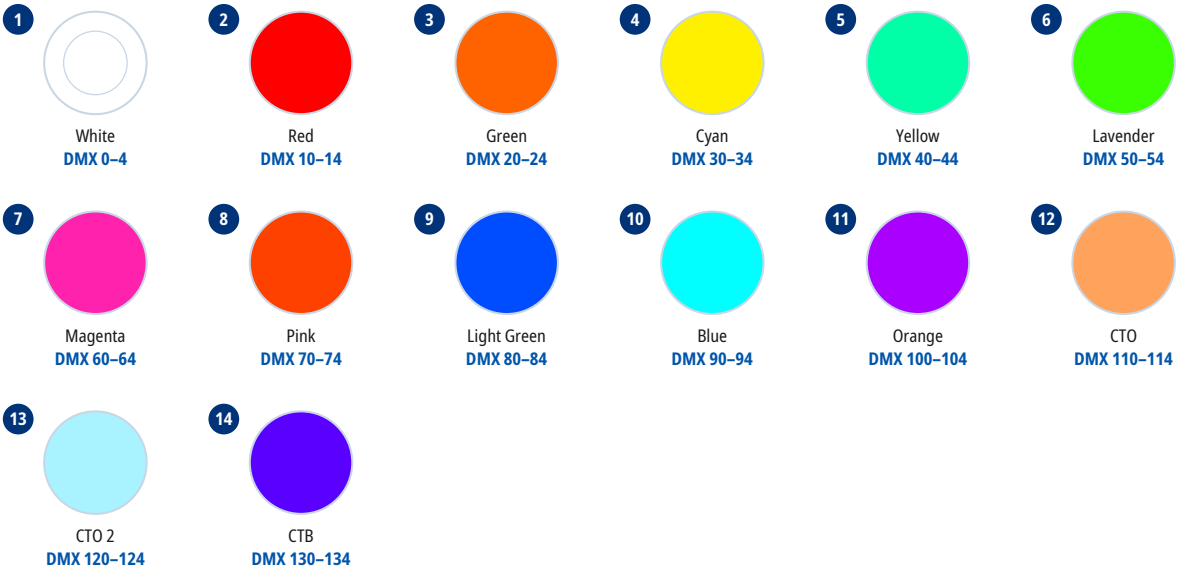
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “16ch”: 16.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied channel does not exceed 512. Devices with the same start address and mode respond identically.
- For several devices in a row in the DMX mode “16ch”, 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

	16ch 16 channels
Pan / Tilt	10, 12
Dimmer	3
Shutter / strobe	2
Color wheel	1
Gobo wheel	4
Prism	5–8, 14
Frost	15
Focus	9
Effects / macros	14

Color wheel



Gobo wheel 1

1
Gobo: Open
DMX 0–4

2 
Gobo 1
DMX 5–9

3 
Gobo 2
DMX 10–14

4 
Gobo 3
DMX 15–19

5 
Gobo 4
DMX 20–24

6 
Gobo 5
DMX 25–29

7
Gobo 6
DMX 30–34

8
Gobo 7
DMX 35–39

9
Gobo 8
DMX 40–44

10
Gobo 9
DMX 45–49

11 
Gobo 10
DMX 50–54

12 
Gobo 11
DMX 55–59

13 
Gobo 12
DMX 60–64

14 
Gobo 13
DMX 65–75

Prism 1

1
Open
DMX 0–63

2 
6 facets
Prism 1
DMX 64–127

3 
8 facets
Prism 2
DMX 128–191

4 
28 facets
Prism 1+2
DMX 192–255

Gobo wheel 2

1
Open
DMX 0

2 
Color 7
DMX 128–191

3 
Frost
DMX 192–255

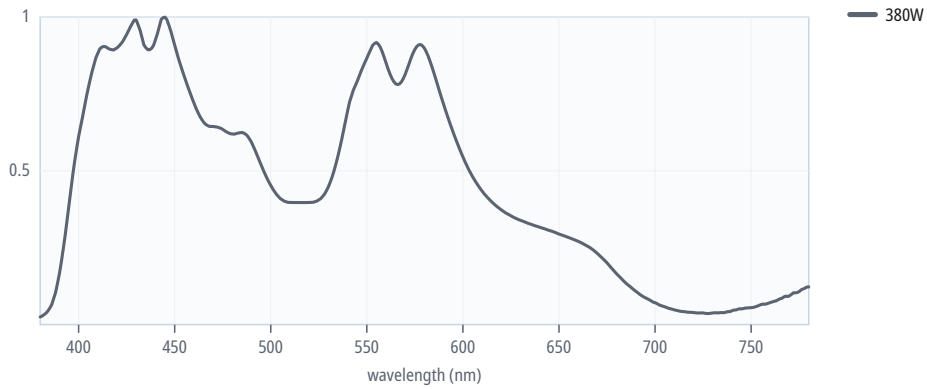
Prism 2

1
Open
DMX 0–63

2 
48 facets
Prism 1
DMX 64–127

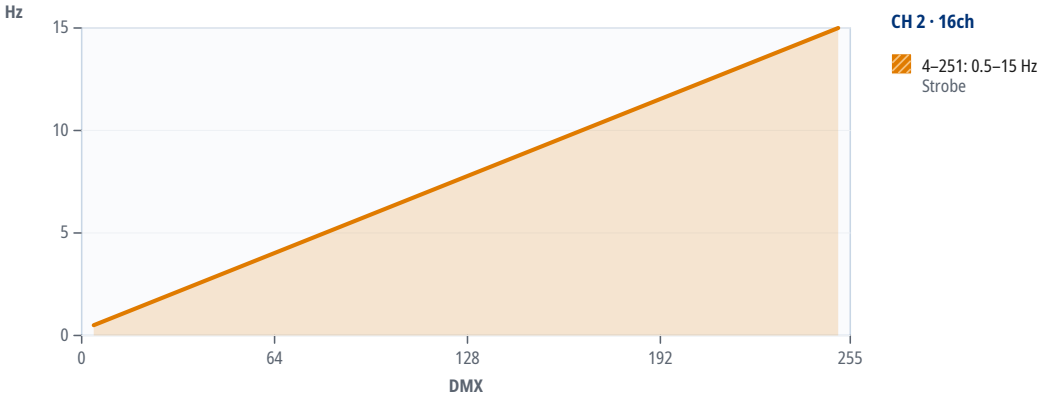
3 
24 facets
Prism 2
DMX 128–255

Spectra of the light sources



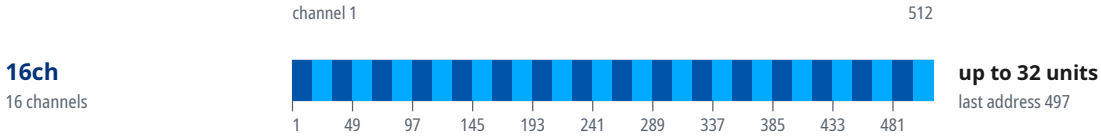
Relative spectrum of each light source as the GDTF file states it; each curve is scaled to its own maximum.

Strobe rate



9 DMX channels

Units in one DMX universe



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

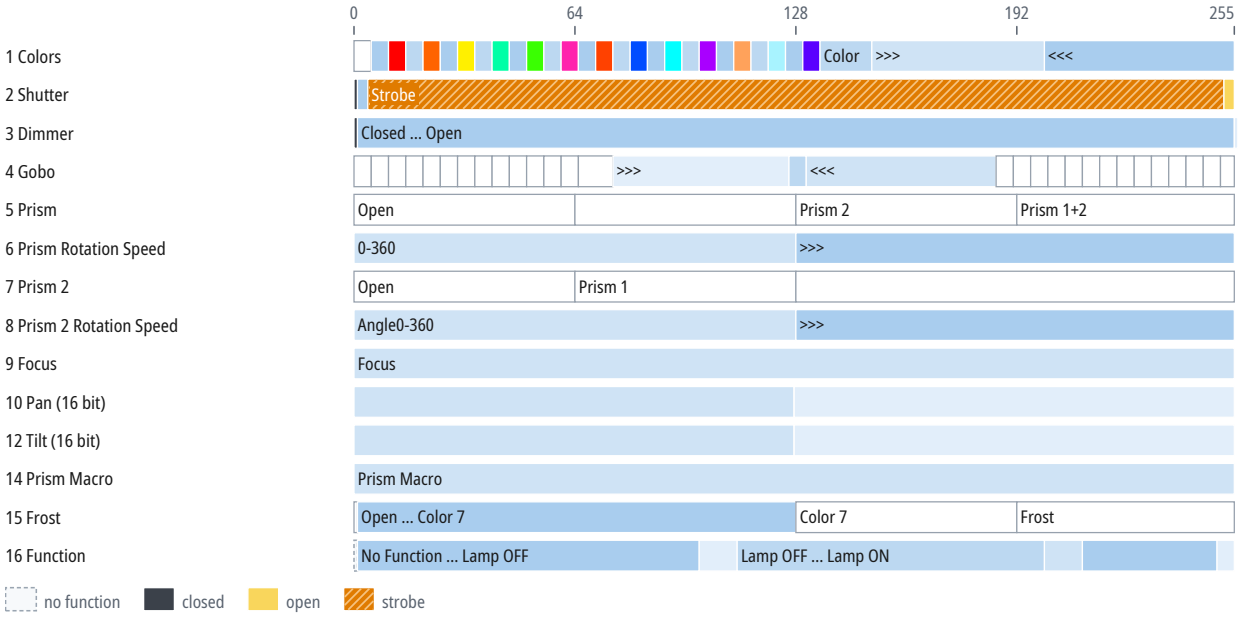
Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	81	11	161	16	241
2	17	7	97	12	177	17	257
3	33	8	113	13	193	18	273
4	49	9	129	14	209	19	289
5	65	10	145	15	225	20	305

Mode 16ch

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 2 Shutter at 252–255 “Open”; CH 3 Dimmer above 0. The GDTF file gives these values for a console's Highlight function: CH 2 Shutter 255, CH 3 Dimmer 255.

Channel functions at a glance



CH	Function	DMX	Description
1	Colors	0–4	White
		5–9	White ... Red
		10–14	Red
		15–19	Red ... Green
		20–24	Green

CH	Function	DMX	Description
1	Colors (continued)	25–29	Green ... Cyan
		30–34	Cyan
		35–39	Cyan ... Yellow
		40–44	Yellow
		45–49	Yellow ... Lavender
		50–54	Lavender
		55–59	Lavender ... Magenta
		60–64	Magenta
		65–69	Magenta ... Pink
		70–74	Pink
		75–79	Pink ... Light Green
		80–84	Light Green
		85–89	Light Green ... Blue
		90–94	Blue
		95–99	Blue ... Orange
		100–104	Orange
		105–109	Orange ... CTO
		110–114	CTO
		115–119	CTO ... CTO 2
		120–124	CTO 2
		125–129	CTO 2 ... CTB
		130–134	CTB
		135–149	Color
		150–199	>>> (360–1 °/s)
		200–255	<<< (1–360 °/s)
2	Shutter	0–3	Closed
		4–251	Strobe (0.5–15 Hz)
		252–255	Open
3	Dimmer	0	Closed
		1–254	Closed ... Open
		255	Open
4	Gobo	0–4	Gobo: Open
		5–9	Gobo 1
		10–14	Gobo 2
		15–19	Gobo 3
		20–24	Gobo 4
		25–29	Gobo 5
		30–34	Gobo 6
		35–39	Gobo 7
		40–44	Gobo 8
		45–49	Gobo 9
		50–54	Gobo 10

CH	Function	DMX	Description
4	Gobo (continued)	55–59	Gobo 11
		60–64	Gobo 12
		65–74	Gobo 13
		75–125	>>> (360–10 °/s)
		126–130	Gobo 1 Wheel Spin: Stop
		131–185	<<< (10–360 °/s)
		186–190	Gobo 1 Shake (1–10 Hz)
		191–195	Gobo 2 Shake (1–10 Hz)
		196–200	Gobo 3 Shake (1–10 Hz)
		201–205	Gobo 4 Shake (1–10 Hz)
		206–210	Gobo 5 Shake (1–10 Hz)
		211–215	Gobo 6 Shake (1–10 Hz)
		216–220	Gobo 7 Shake (1–10 Hz)
		221–225	Gobo 8 Shake (1–10 Hz)
		226–230	Gobo 9 Shake (1–10 Hz)
		231–235	Gobo 10 Shake (1–10 Hz)
		236–240	Gobo 11 Shake (1–10 Hz)
		241–245	Gobo 12 Shake (1–10 Hz)
		246–255	Gobo 13 Shake (1–10 Hz)
5	Prism	0–63	Open
		64–127	Prism 1
		128–191	Prism 2
		192–255	Prism 1+2
6	Prism Rotation Speed	0–127	0-360 (360°)
		128–255	>>> (1–360 °/s)
7	Prism 2	0–63	Open
		64–127	Prism 1
		128–255	Prism 2
8	Prism 2 Rotation Speed	0–127	Angle0-360 (up to 180 °/s (30 rpm))
		128–255	>>> (1–360 °/s)
9	Focus	0–255	Focus
10	Pan	0–127	Pan
		128	Center
		128–255	Pan
11	Pan Fine	0–255	Fine adjustment of CH 10
12	Tilt	0–127	Tilt
		128	Center
		128–255	Tilt
13	Tilt Fine	0–255	Fine adjustment of CH 12
14	Prism Macro	0–255	Prism Macro
15	Frost	0	Open
		1–127	Open ... Color 7

CH	Function	DMX	Description
15	Frost (continued)	128–191	Color 7
		192–255	Frost
16	Function	0	No Function
		1–99	No Function ... Lamp OFF
		100–110	Lamp OFF
		111–199	Lamp OFF ... Lamp ON
		200–210	Lamp ON
		211–249	Lamp ON ... ALL Reset
		250–255	ALL Reset

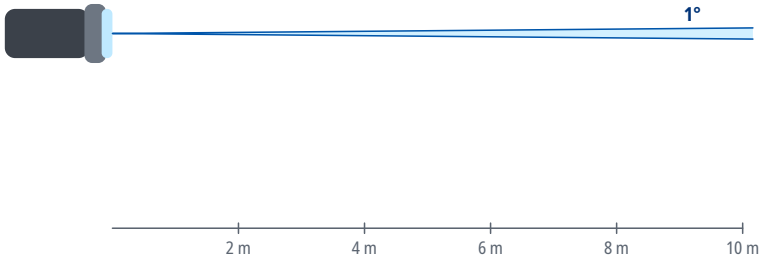
10 Technical specifications

Parameter	Value
Light	
Light source	discharge lamp
Lamp power	380 W
Luminous flux	840,000 lm
Color temperature	7,500 K
Color rendering index (CRI)	80
Optics	
Beam angle	1°
Movement	
Pan	540°
Tilt	270°
Dimensions and construction	
Weight	16.5 kg
Operating environment	
Operating temperature	-20 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	0.5–15 Hz
Color wheel rotation	up to 360 °/s (60 rpm)
Gobo wheel 1 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.