DMX REFERENCE

IP Pixelstrip 40

Showtec



Manufacturer	Showtec
GDTF file	Showtec_IP_Pixelstrip_40_139566.gdtf
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1 About this manual

This document describes the IP Pixelstrip 40 by Showtec. It was compiled from the GDTF file Showtec_IP_Pixelstrip_40_139566.gdtf from the GDTF-Share library.

File revision: “Initial upload by GDTFservice.com commissioned by Showtec”.

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 Showtec; 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	1.6 kg
Ingress protection	IP65

DMX modes

Mode	Channels	Units in one universe	First start addresses
8Ch Mode	8	64	1, 9, 17, 25, ...
12Ch Mode	12	42	1, 13, 25, 37, ...
10x RGB mode	30	17	1, 31, 61, 91, ...
20x RGB mode	60	8	1, 61, 121, 181, ...
40x RGB mode	120	4	1, 121, 241, 361



Read the manual before use



Do not stare into the light

3 Safety instructions



Read the manual before use



Do not stare into the light

⚠ 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.

⚠ CAUTION

- The device is rated IP65 and may be used outdoors within the limits of this rating.
- This protection is effective only when all connectors are mated or closed with their protective caps and all seals are intact. Use cables and connectors with the same or a higher protection rating.
- Do not open the housing; opening it breaks the seals and the protection rating can no longer be guaranteed.
- Install the device so that water cannot collect around connectors and cable glands, and inspect seals and cables regularly.

⚠ 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.

4 Product description

Description in the GDTF file

“IP Pixelstrip 40 is a high-brightness LED bar with pixel control. Each of the 40 RGB LEDs can be controlled individually by the dedicated Showtec IP Pixel Controller. It has an IP65-rated enclosure with fanless convection cooling, making it suitable for indoor as well as (temporary) outdoor stage applications.”

“The short and fixed combined data/power input cable allows the IP Pixelstrip 40 to be daisy-chained and mixed with the IP Pixelstrip 80 up to a total length of 4 metres per controller output. Dedicated cables run from the controller to the IP Pixelstrip for power and data signals (sold separately). A straight alignment plate is included and locks into place without tools. Optional alignment plates allow for more complex configurations, even 3D setups. A standard smoked black flat cover is included and can be easily replaced by an optional white flat cover, white dome-shaped cover or white rectangular cover.”

“Please note that stand-alone or direct DMX operation is not possible; the Showtec IP Pixel Controller is required to drive this LED pixel bar.”

5 Installation

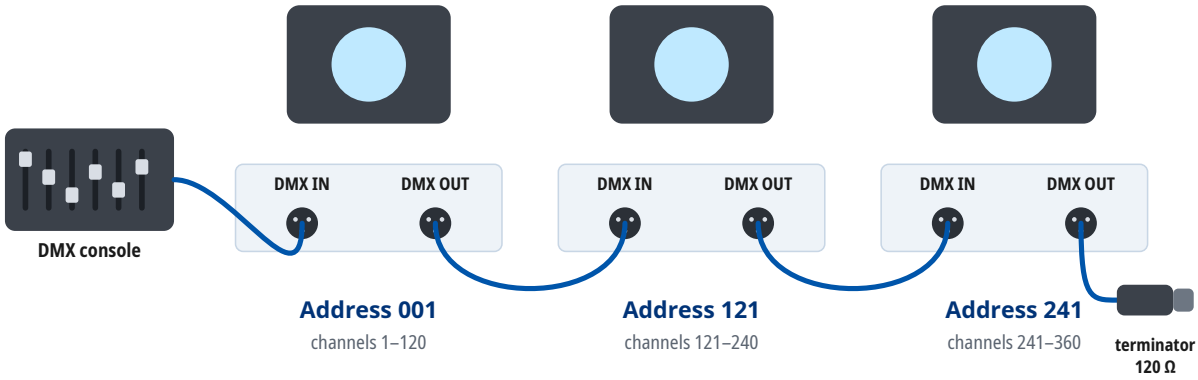
⚠ **WARNING**

- 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: 1.6 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 40x RGB mode: every unit occupies 120 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

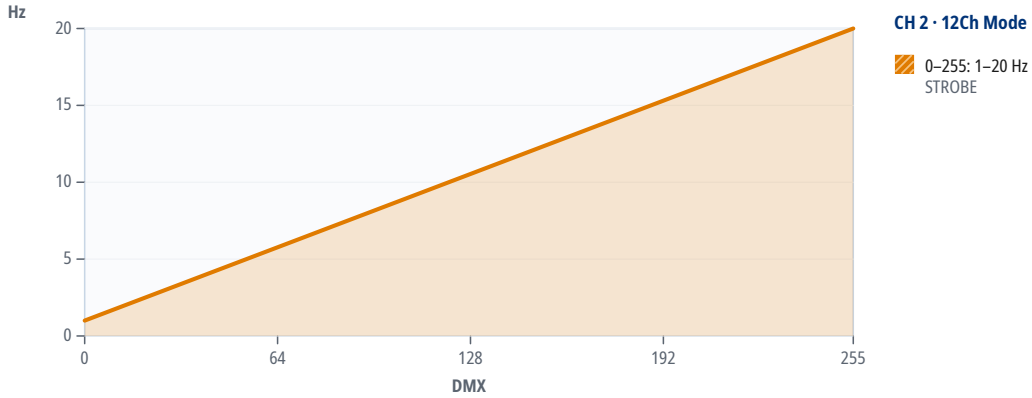
- The device occupies as many consecutive channels in the DMX universe as the selected DMX mode uses, starting at the set start address.
- Number of channels occupied in the DMX mode “40x RGB mode”: 120.
- Choose start addresses so that the channels of individual devices do not overlap and the last occupied 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 “40x RGB mode”, you can use, for example, the start addresses 1, 121, 241, 361.
- 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

	8Ch Mode 8 channels	12Ch Mode 12 channels	10x RGB mode 30 channels	20x RGB mode 60 channels	40x RGB mode 120 channels
Dimmer	1	1	✓	✓	✓
Shutter / strobe	2	2			
Color mixing	3–5	3–5, 10–12	1–30	1–60	1–120
Effects / macros	6, 7	6, 7, 9			

Strobe rate



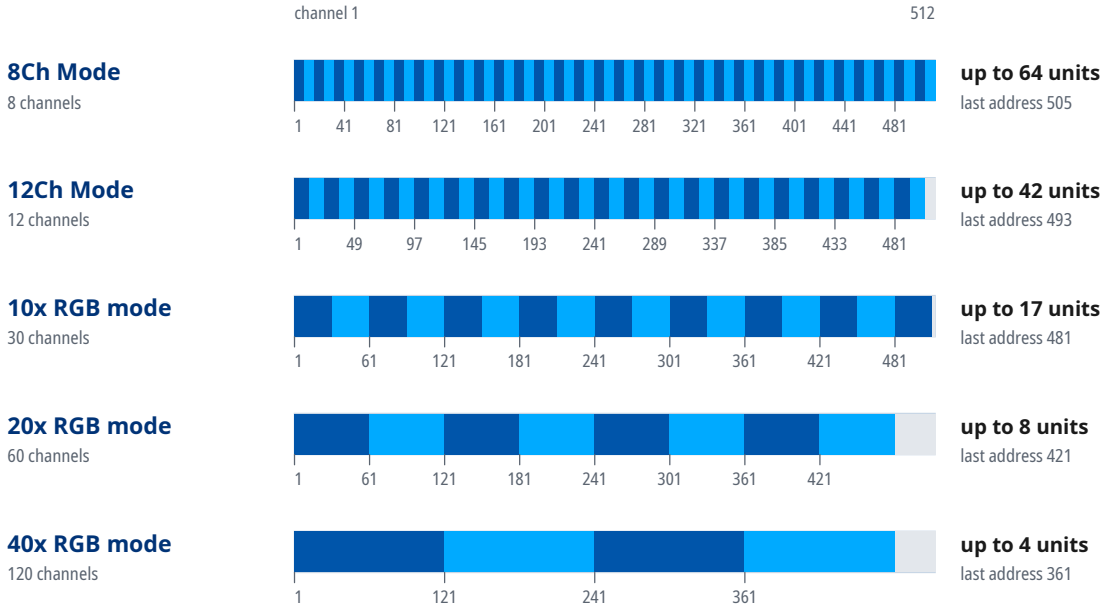
Cells (pixels)

1 CH 1	2 CH 4	3 CH 7	4 CH 10	5 CH 13	6 CH 16	7 CH 19	8 CH 22	9 CH 25	10 CH 28	11 CH 31	12 CH 34	13 CH 37	14 CH 40
15 CH 43	16 CH 46	17 CH 49	18 CH 52	19 CH 55	20 CH 58	21 CH 61	22 CH 64	23 CH 67	24 CH 70	25 CH 73	26 CH 76	27 CH 79	28 CH 82
29 CH 85	30 CH 88	31 CH 91	32 CH 94	33 CH 97	34 CH 100	35 CH 103	36 CH 106	37 CH 109	38 CH 112	39 CH 115	40 CH 118		

40 cells in one row, left to right as the GDTF file places them (seen from above), wrapped after 14; numbered by their first DMX channel (CH) in the mode “12Ch Mode”.

9 DMX channels

Units in one DMX universe



Start addresses of 20 units in the mode “40x RGB mode”

Unit	Start address	Unit	Start address	Unit	Start address	Unit	Start address
1	1	6	U2 · 121	11	U3 · 241	16	U4 · 361
2	121	7	U2 · 241	12	U3 · 361	17	U5 · 1
3	241	8	U2 · 361	13	U4 · 1	18	U5 · 121
4	361	9	U3 · 1	14	U4 · 121	19	U5 · 241
5	U2 · 1	10	U3 · 121	15	U4 · 241	20	U5 · 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 8Ch Mode

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Red 255, CH 4 Green 255, CH 5 Blue 255.

CH	Function	DMX	Description
1	Dimmer	0	Min
		1–254	Min > Max
		255	Max
2	Shutter	0	Min
		1–254	Min > Max
		255	Max
3	Red	0	Min
		1–254	Min > Max
		255	Max
4	Green	0	Min

CH	Function	DMX	Description
4	Green (continued)	1–254	Min > Max
		255	Max
5	Blue	0	Min
		1–254	Min > Max
		255	Max
6	Effects		INTERNAL PROGRAM
		0–15	Off - Custom
		16–23	Program 1 - Macro
		24–31	Program 2 - Macro
		32–39	Program 3 - Macro
		40–47	Program 4 - Macro
		48–55	Program 5 - Macro
		56–63	Program 6 - Macro
		64–71	Program 7 - Macro
		72–79	Program 8 - Macro
		80–87	Program 9 - Macro
		88–95	Program 10 - Macro
		96–103	Program 11 - Macro
		104–111	Program 12 - Macro
		112–119	Program 13 - Macro
		120–127	Program 14 - Macro
		128–135	Program 15 - Macro
		136–143	Program 16 - Macro
		144–151	Program 17 - Macro
		152–159	Program 18 - Macro
		160–167	Program 19 - Macro
		168–175	Program 20 - Macro
		176–183	Program 21 - Macro
		184–191	Program 22 - Macro
		192–199	Program 23 - Macro
		200–207	Program 24 - Macro
		208–215	Program 25 - Macro
		216–223	Program 26 - Macro
		224–231	Program 27 - Macro
		232–239	Program 28 - Macro
		240–247	Program 29 - Macro
		248–255	Program 1-29 - Macro
7	Effects Speed		PROGRAM SPEED
		0	Min
		1–254	Min > Max
		255	Max

CH	Function	DMX	Description
8	Function		EFFECT DIRECTION
		0–128	Normal - Custom
		129–255	Inverted - Custom

Mode 12Ch Mode

The GDTF file gives these values for a console's Highlight function: CH 1 Dimmer 255, CH 3 Red 1 255, CH 4 Green 1 255, CH 5 Blue 1 255.

CH	Function	DMX	Description
1	Dimmer		Same as CH 1 in the mode “8Ch Mode” (p. 8)
2	Shutter		Same as CH 2 in the mode “8Ch Mode” (p. 8)
3	Red 1	0	Min
		1–254	Min > Max
		255	Max
4	Green 1	0	Min
		1–254	Min > Max
		255	Max
5	Blue 1	0	Min
		1–254	Min > Max
		255	Max
6	Effects		Same as CH 6 in the mode “8Ch Mode” (p. 9)
7	Effects Speed		Same as CH 7 in the mode “8Ch Mode” (p. 9)
8	Function		Same as CH 8 in the mode “8Ch Mode” (p. 10)
9	Effects Adjust 1		EFFECT ZOOM
		0	Narrow
		1–254	Narrow > Wide
		255	Wide
10	Red 2		BACKGROUND RED
		0	Min
		1–254	Min > Max
		255	Max
11	Green 2		BACKGROUND GREEN
		0	Min
		1–254	Min > Max
		255	Max
12	Blue 2		BACKGROUND BLUE
		0	Min
		1–254	Min > Max
		255	Max

Mode 10x RGB mode

The GDTF file gives these values for a console's Highlight function: CH 1 Red 255 (the same in each of the 10 cells), CH 2 Green 255 (the same in each of the 10 cells), CH 3 Blue 255 (the same in each of the 10 cells).

CH	Function	DMX	Description
1	Red 1	0	Min
		1–254	Min > Max
		255	Max
2	Green 1	0	Min
		1–254	Min > Max
		255	Max
3	Blue 1	0	Min
		1–254	Min > Max
		255	Max

CH 1–30: 10 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 1–3); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	Cell	Red	Green	Blue	Cell	Red	Green	Blue
1	1	2	3	2	4	5	6	3	7	8	9
4	10	11	12	5	13	14	15	6	16	17	18
7	19	20	21	8	22	23	24	9	25	26	27
10	28	29	30								

Mode 20x RGB mode

The GDTF file gives these values for a console's Highlight function: CH 1 Red 255 (the same in each of the 20 cells), CH 2 Green 255 (the same in each of the 20 cells), CH 3 Blue 255 (the same in each of the 20 cells).

CH	Function	DMX	Description
1	Red 1	0	Min
		1–254	Min > Max
		255	Max
2	Green 1	0	Min
		1–254	Min > Max
		255	Max
3	Blue 1	0	Min
		1–254	Min > Max
		255	Max

CH 1–60: 20 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 1–3); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	Cell	Red	Green	Blue	Cell	Red	Green	Blue
1	1	2	3	2	4	5	6	3	7	8	9
4	10	11	12	5	13	14	15	6	16	17	18
7	19	20	21	8	22	23	24	9	25	26	27
10	28	29	30	11	31	32	33	12	34	35	36
13	37	38	39	14	40	41	42	15	43	44	45
16	46	47	48	17	49	50	51	18	52	53	54
19	55	56	57	20	58	59	60				

Mode 40x RGB mode

CH	Function	DMX	Description
1	Red 1	0	Min
		1–254	Min > Max
		255	Max
2	Green 1	0	Min
		1–254	Min > Max
		255	Max
3	Blue 1	0	Min
		1–254	Min > Max
		255	Max

CH 1–120: 40 cells of 3 channels each. Every cell works as cell 1 in the table above (CH 1–3); the table below gives each cell's channel numbers.

Cell	Red	Green	Blue	Cell	Red	Green	Blue	Cell	Red	Green	Blue
1	1	2	3	2	4	5	6	3	7	8	9
4	10	11	12	5	13	14	15	6	16	17	18
7	19	20	21	8	22	23	24	9	25	26	27
10	28	29	30	11	31	32	33	12	34	35	36
13	37	38	39	14	40	41	42	15	43	44	45
16	46	47	48	17	49	50	51	18	52	53	54
19	55	56	57	20	58	59	60	21	61	62	63
22	64	65	66	23	67	68	69	24	70	71	72
25	73	74	75	26	76	77	78	27	79	80	81
28	82	83	84	29	85	86	87	30	88	89	90
31	91	92	93	32	94	95	96	33	97	98	99
34	100	101	102	35	103	104	105	36	106	107	108
37	109	110	111	38	112	113	114	39	115	116	117
40	118	119	120								

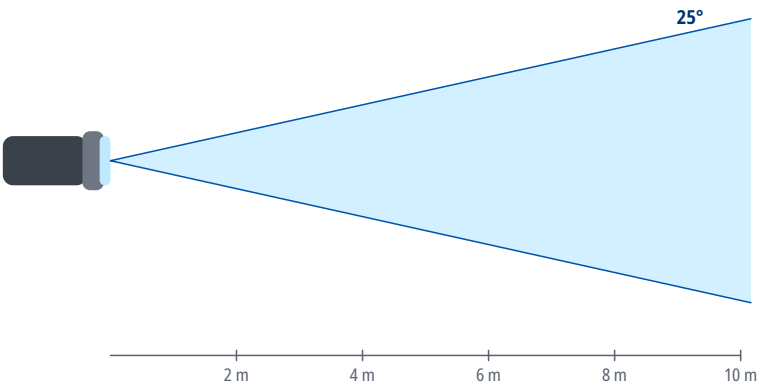
10 Technical specifications

Parameter	Value
Light source	LED
Weight	1.6 kg
Ingress protection	IP65
Meaning of the IP code (IEC 60529)	Dust-tight; protected against water jets
Operating temperature	-5 to 40 °C

Speeds and ranges

Parameter	Value
Strobe frequency	1–20 Hz

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.

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.

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.