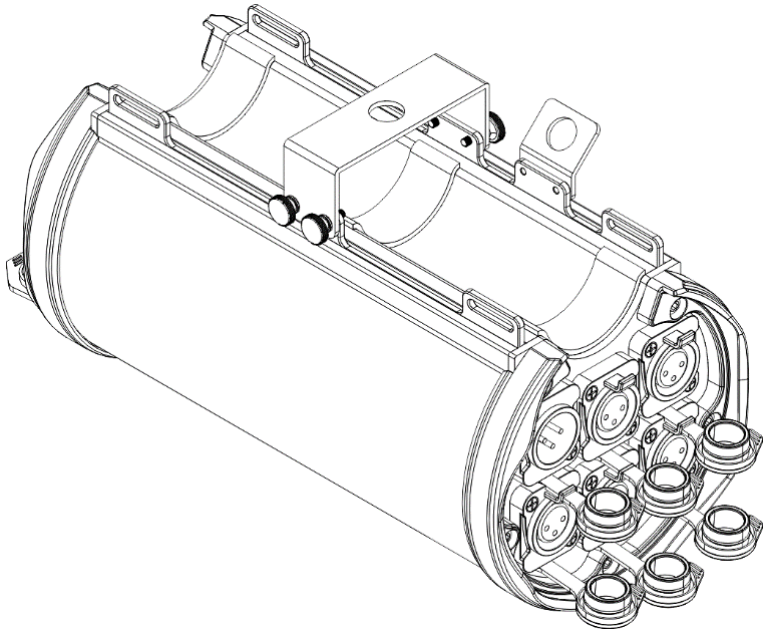
USER MANUAL



ENGLISH

Booster IP 1-4, 3-pin V1

Product code: 50796

Preface

Thank you for purchasing this Showtec product.

The purpose of this user manual is to provide instructions for the correct and safe use of this product.

Keep the user manual for future reference as it is an integral part of the product. The user manual shall be stored at an easily accessible location.

This user manual contains information concerning:

- Safety instructions
- Installation and operation of the device
- Intended and non-intended use of the device
- Maintenance procedures
- Troubleshooting
- Transport, storage and disposal of the device

Non-observance of the instructions in this user manual may result in serious injuries and damage of property.

Design and product specifications are subject to change without prior notice.

For the latest version of this document or other language versions, please visit our website www.highlite.com or contact us at service@highlite.com.

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Table of contents

1. Introduction

1.1. Before Using the Product

Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

After unpacking, check the contents of the box. If any parts are missing or damaged, contact your Highlite International dealer.

Your shipment includes:

- Showtec Booster IP 1-4, 3-pin
- Schuko to power pro cable (1,5 m)
- Mounting bracket (attached)
- 2 x hook-and-loop strap
- User manual

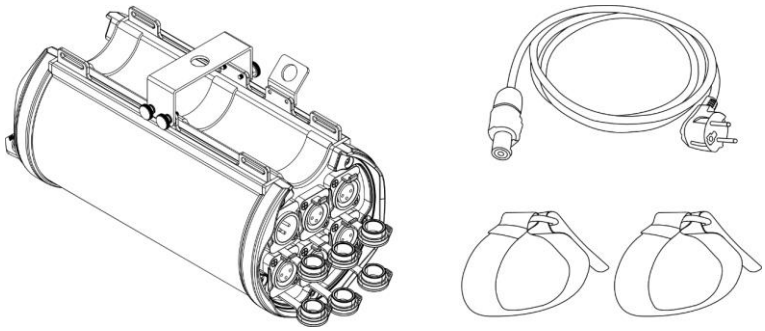


Fig. 01

1.2. Intended Use

This device is intended for use as a DMX splitter/booster. It is suitable for use indoors and outdoors. It is not suitable for households.

Any other use, not mentioned under intended use, is regarded as non-intended and incorrect use.

1.3. Product Lifespan

This device is not designed for permanent operation. Disconnect the device from the electrical power supply when the device is not in use. This will reduce wear and improve the device's lifespan.

1.4. Text Conventions

Throughout the user manual the following text conventions are used:

- References: References to chapters and parts of the device are in bold lettering, for example: "Refer to **2. Safety**", "through the **safety eye (16)**"
- Notes: **Note:** (in bold lettering) is followed by useful information or tips

1.5. Symbols and Signal Words

Safety notes and warnings are indicated throughout the user manual by safety signs.

Always follow the instructions provided in this user manual.

DANGER Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

WARNING Indicates an imminently hazardous situation which, if not avoided, could result in serious injury or death.

CAUTION Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

Attention Indicates important information for the correct operation and use of the product.

Important Read and observe the instructions in this document.

Provides important information about the disposal of this product.

1.6. Symbols on the Information Label

This product is provided with an information label. The information label is located on the bottom plate of the device.

The information label contains the following symbols:

This device is designed for indoor use.

This device falls under IEC protection class I.

This device shall not be treated as household waste.

2. Safety

Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

2.1. Warnings and Safety Instructions

DANGER
Danger for children

For adult use only. The device must be installed beyond the reach of children.

- Do not leave various parts of the packaging (plastic bags, polystyrene foam, nails, etc.) within children's reach. Packaging material is a potential source of danger for children.

DANGER
Electric shock caused by dangerous voltage inside

There are areas within the device where dangerous touch voltage (> 120 V DC) may be present.

- Do not open the device or remove any covers.
- Do not operate the device if the covers or the housing are open. Before operation, check if the housing is firmly closed and all screws are tightly fastened.
- Disconnect the device from electrical power supply before service and maintenance, and when the device is not in use.

DANGER
Electric shock caused by short-circuit

This device falls under IEC protection Class I.

- Make sure that the device is electrically connected to ground (earth). Connect the device only to a socket-outlet with ground (earth) connection.
- Do not cover the ground (earth) connection.
- Do not bypass the thermostatic switch or fuses.
- For replacement use fuses of the same type and rating only.
- Do not let the power cable come into contact with other cables. Handle the power cable and all connections with the mains with caution.
- Do not modify, bend, mechanically strain, put pressure on, pull or heat up the power cable.
- Make sure that the power cable is not crimped or damaged. Examine the power cable periodically for any defects.
- Do not immerse the device in water or other liquids. Do not install the device in a location where flooding may occur.
- Do not use the device during thunderstorms. Disconnect the device from the electrical power supply immediately.
- Keep the connectors sealed with the rubber caps when the connectors are not in use.

- Do not connect the cables from above the connectors, if the device is installed outdoors. Make a 'drip loop' in the cable so that rain water cannot enter the device.

Attention
Power supply

- Before connecting the device to the power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.
- Make sure that the cross-sectional area of the extension cords and power cables is sufficient for the required power consumption of the device.

Attention
For professional use only
This device shall be used only for the purposes it is designed for.

This device is designed to be used as a DMX splitter/booster. Any incorrect use may lead to hazardous situations and result in injuries and material damage.

- This device is not suitable for households.
- This device is not designed for permanent operation.
- This device does not contain user-serviceable parts. Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Attention
Before each use, examine the device visually for any defects.

Make sure that:

- All screws used for installing the device or parts of the device are tightly fastened and are not corroded.
- The safety devices are not damaged.
- There are no deformations on housings, fixations and installation points.
- The power cables are not damaged and do not show any material fatigue.

Attention
Do not expose the device to conditions that exceed the rated IP class conditions.

This device is IP65 rated. IP (Ingress Protection) 65 class means that the device is dust-tight and protected against harmful effect of water jets.

Keep the connectors sealed with the rubber caps when the connectors are not in use.

2.2. Requirements for the User

This product may be used by ordinary persons. Installation, service and maintenance shall be carried out only by instructed or skilled persons. Contact your Highlite International dealer for more information.

Instructed persons have been instructed and trained by a skilled person, or are supervised by a skilled person, for specific tasks and work activities associated with the service of this product, so that they can identify risks and take precautions to avoid them.

Skilled persons have training or experience, which enables them to recognize risks and to avoid hazards associated with the installation, service and maintenance of this product.

Ordinary persons are all persons other than instructed persons and skilled persons. Ordinary persons include not only users of the product but also any other persons that may have access to the device or who may be in the vicinity of the device.

3. Description of the Device

The Showtec Booster IP 1-4, 3-pin is a DMX/RDM splitter and booster. The housing and connectors have an IP65 rating, which also makes this device suitable for outdoor use.

3.1. Front View

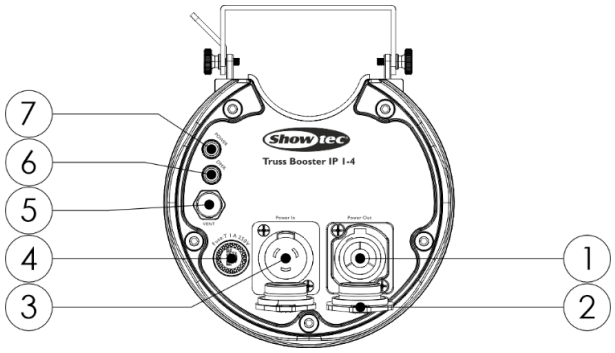


Fig. 02

01) Power Pro True connector OUT 100–240 V
02) 8 x Input/output cover
03) Power Pro True connector IN 100–240 V
04) Fuse
05) Protective vent
06) DMX LED indicator
07) Power LED indicator

3.2. Back View

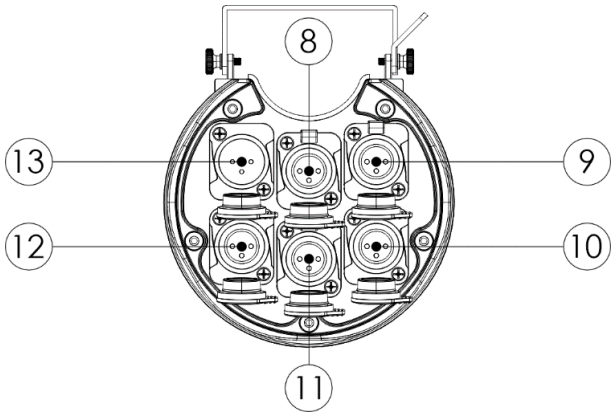


Fig. 03

08) 3-pin DMX signal connector OUT
09) 3-pin DMX signal connector OUT
10) 3-pin DMX signal connector OUT
11) 3-pin DMX signal connector OUT
12) 3-pin DMX signal connector THRU
13) 3-pin DMX signal connector IN

3.3. Side View

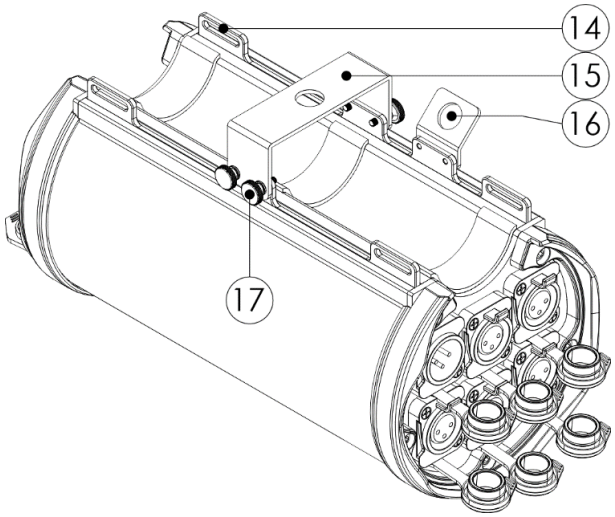


Fig. 04

14) 4 x Strap slot
15) Mounting bracket
16) Safety eye
17) 4 x Mounting bracket screw

3.4. Product Specifications

Model:	Booster IP 1-4, 3-pin

Electrical:	
Input voltage:	100–240 V AC, 50 Hz
Power consumption:	5 W
Fuse:	T 1 A, 250 V

Physical:	
Dimensions:	245 x 125 x 150 mm (L x W x H)
Weight:	2,45 kg

Operation and control:	
Control protocols:	DMX-512, RDM
LED indicators:	Power, Signal

Connections:	
Power connections:	Power Pro True connectors IN/ OUT
Input connections:	1 x 3-pin DMX connector IN
Output connections:	4 x 3-pin DMX connector OUT, 1 x 3-pin DMX connector THRU

Construction:	
Housing:	Aluminium
Color:	Black
IP rating:	IP65
Cooling:	Natural heat dissipation

Thermal:	
Maximum ambient temperature t_a:	40 °C
Minimum operating temperature:	-5 °C

3.5. Dimensions

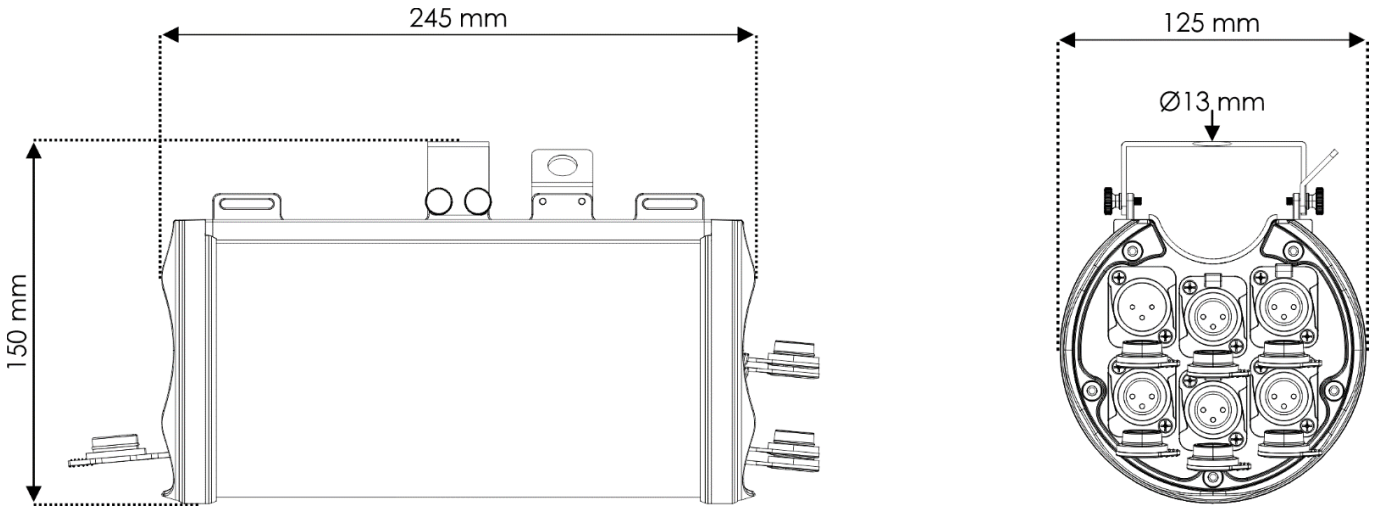


Fig. 05

4. Installation

4.1. Safety Instructions for Installation

WARNING
Incorrect installation can cause serious injuries and damage of property.

If trussing systems are used, installation must be carried out only by instructed or skilled persons.

Follow all applicable European, national and local safety regulations concerning rigging and trussing.

4.2. Installation Site Requirements

- The device can be mounted to a truss or another rigging structure in any orientation.
- The minimum distance to other objects must be bigger than 0,5 m.
- The maximum ambient temperature t_a = 40 °C must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40 °C.

4.3. Rigging

The device can be mounted to a truss or other rigging structure in any orientation. It can be mounted using a clamp or the included hook-and-loop straps. Make sure that all loads are within the pre-determined limits of the supporting structure.

CAUTION
Restrict the access under the work area during rigging and/or derigging.

To mount the device using a clamp, follow the steps below:

01) Use a clamp to attach the device to the supporting structure, as shown in Fig. 06. Make sure that the device cannot move freely.
02) Secure the device with a secondary suspension, for example a safety cable. Make sure that the secondary suspension can hold 10 times the weight of the device. If possible, the secondary suspension should be attached to a supporting structure independent of the primary suspension. Put the safety cable through the **safety eye (16)**, as shown in Fig. 06.

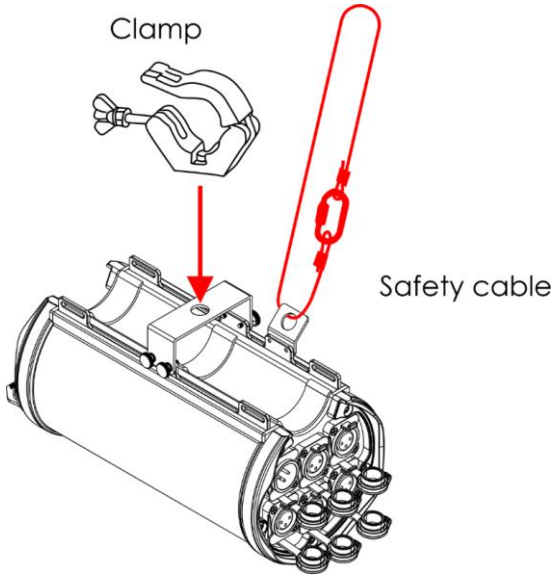


Fig. 06

To mount the device using the included hook-and-loop straps, follow the steps below:

01) Loosen the **mounting bracket screws (17)** and remove the **mounting bracket (15)**, as shown in Fig. 07.

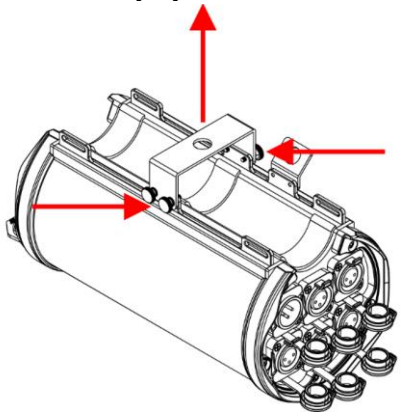


Fig. 07

02) Thread the hook-and-loop straps through the **strap slots (14)** to attach the device to the pipe structure, as shown in Fig. 08. Make sure that the device cannot move freely.

03) Secure the device with a secondary suspension, for example a safety cable. Make sure that the secondary suspension can hold 10 times the weight of the device. If possible, the secondary suspension should be attached to a supporting structure independent of the primary suspension. Put the safety cable through the **safety eye (16)**, as shown in Fig. 08.

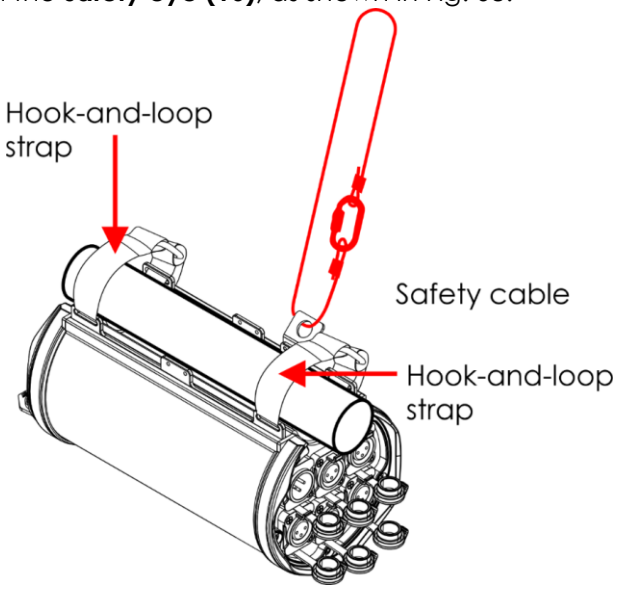


Fig. 08

5. Setup and Operation

5.1. Warnings and Precautions

Attention
Connect all data cables before supplying power.
Disconnect power supply before connecting or disconnecting data cables.

5.2. Setup Example

Fig. 09 shows a typical setup example.

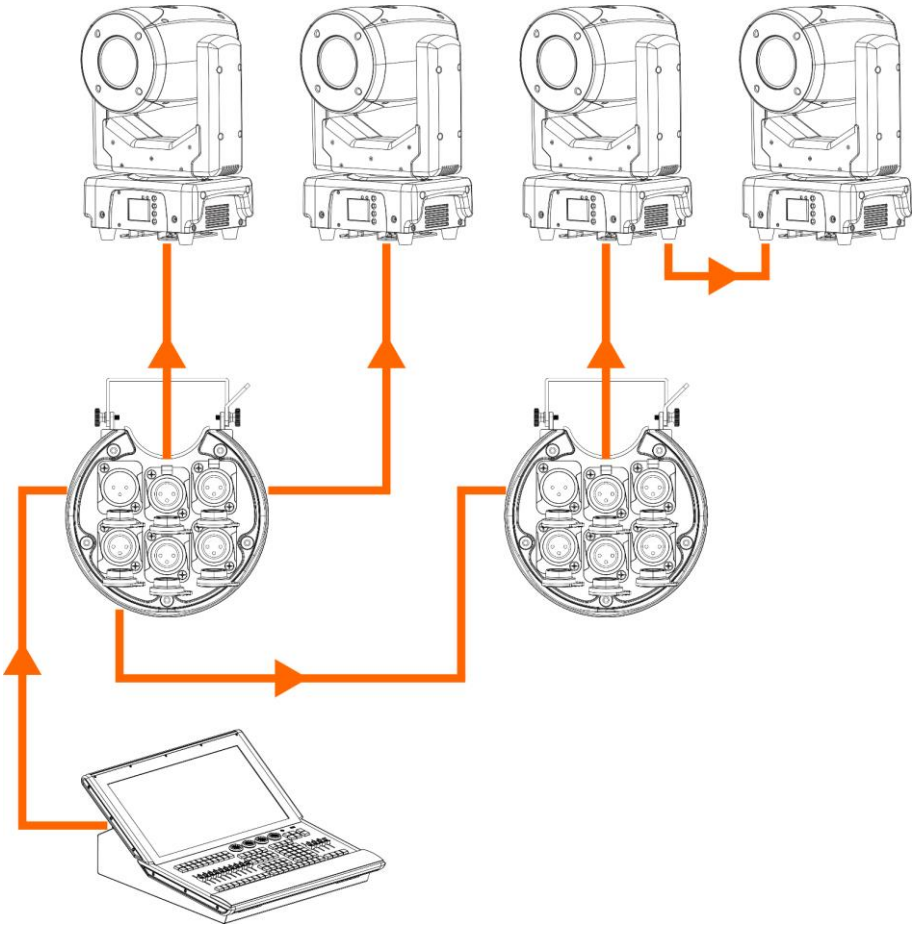


Fig. 09

5.3. DMX Connection

5.3.1. DMX-512 Protocol

DMX-512 is a communication protocol used to control stage lighting and effects.

Devices on a serial data link must be daisy-chained in a single line. To comply with the TIA-485 standard, no more than 32 devices should be connected on one data link.

In order to connect more than 32 devices on one data link, you can use a DMX optically isolated splitter/booster, such as this one. If no splitter/booster is used, this may result in deterioration of the DMX signal.

5.3.2. DMX Cables

Shielded twisted-pair cables with 3-pin XLR connectors must be used for a reliable DMX connection. You can purchase DMX cables directly from your Highlite International dealer or make your own cables.

If you use XLR audio cables for DMX data transmission, this may lead to signal degradation and unreliable operation of the DMX network.

When you make your own DMX cables, make sure that you connect the pins and wires correctly as shown in Fig. 10.

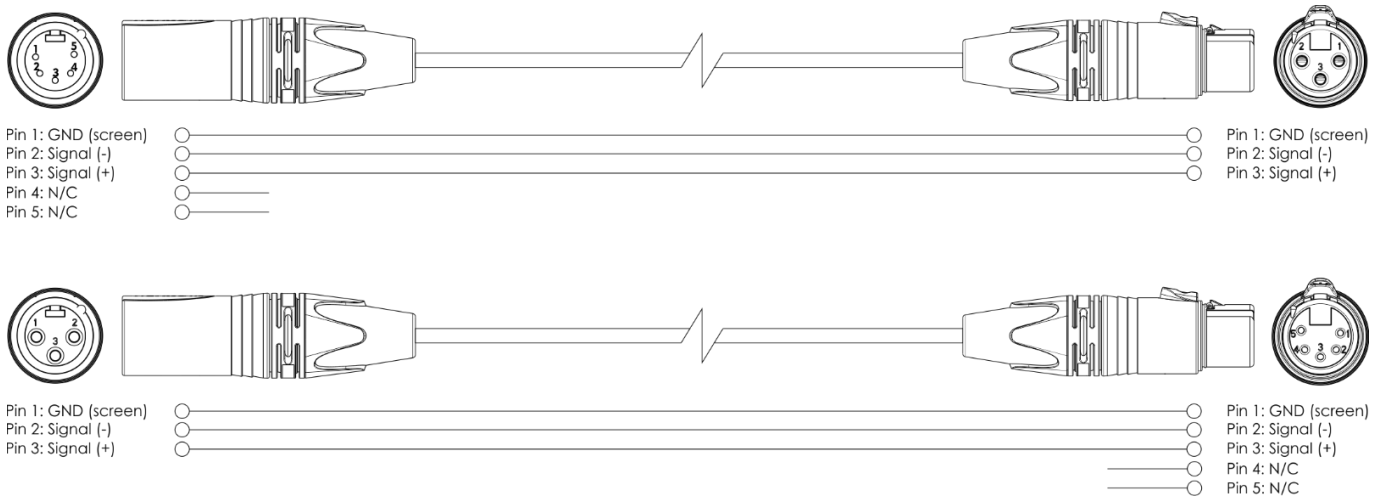


Fig. 10

5.4. Connecting to Power Supply

DANGER
Electric shock caused by short-circuit

The device can be powered by 100–240 V 50 Hz AC mains power. Do not supply power at any other voltage or frequency to the device.

This device falls under IEC protection class I. Make sure that the device is always electrically connected to the ground (earth).

Before connecting the device to the socket-outlet:
- Make sure that the power supply matches the input voltage specified on the information label on the device.
- Make sure that the socket-outlet has ground (earth) connection.

Connect the device to the socket-outlet with the power plug.

This device is IP65 rated.

- Do not expose the device to conditions that exceed the rated IP class conditions.
- Keep the connectors sealed with the rubber caps when the connectors are not in use.
- Do not connect the cables from above the connectors, if the device is installed outdoors. Make a 'drip loop' in the cable so that rain water cannot enter the device.
- Make sure that the cable run is not too heavy. A heavy cable run can cause damage to the connectors. If the connectors are damaged, their ingress protection (IP) can deteriorate.

Connect all of the required DMX inputs, outputs and throughputs before connecting the power input or output.

Connecting the power input will turn the device on. The power indictor will light up to indicate that the device has power. The DMX indicator will light up to indicate that the device is receiving a DMX signal.

In the event that the power indicator or DMX indicator does not light up, see **6. Troubleshooting** on page 16 for more information.

5.5. Power Linking of Multiple Devices

This device supports power linking. Power can be relayed to another device via the power OUT connector. Note that the input and the output connectors have different designs: one type cannot be connected to the other.

Power linking of multiple devices must be carried out only by instructed or skilled persons.

WARNING
Incorrect power linking may lead to overload of the electrical circuit and result in serious injuries and damage of property.

To prevent overload of the electrical circuit, when power linking multiple devices:

- Use cables with sufficient current-carrying capacity. The power cable supplied with the device is not suitable for power linking of multiple devices.
- Make sure that the total current draw of the device and all connected devices does not exceed the rated capacity of the power cables and the circuit breaker.
- Do not link more devices on one power link than the maximum recommended number.

Maximum recommended number of devices:
- at 100–240 V: 15 devices Booster IP 1-4, 3-pin

5.6. RDM Information

This device supports RDM. Refer to **5.6.2. Supported RDM PIDs (Parameter IDs)** for more information.

5.6.1. RDM Details

- Responder: 29B4:0C5xxxxx
- Manufacturer's ID: Showtec
- Manufacturer Label: Showtec
- Model Description: Booster IP 1-4
- Model ID: 197
- Device Label: Booster IP 1-4

Note:

An RDM responder ID consists of 3 parts:

- 1st part – 4 digits – Manufacturer's ID
- 2nd part – 3 digits – Model ID
- 3rd part – 5 digits – Unique ID

The RDM responder IDs of all products of Highlite International start with the same 4 digits. The first 7 digits of the RDM responder ID for each model are the same. The last 5 digits are different for each device.

5.6.2. Supported RDM PIDs (Parameter IDs)

Parameter ID	Value	Required	GET	SET
DISC_UNIQUE_BRANCH	0x0001	*		
DISC_MUTE	0x0002	*		
DISC_UN_MUTE	0x0003	*		
SUPPORTED_PARAMETERS	0x0050	*	*	
DEVICE_INFO	0x0060	*	*	
DEVICE_MODEL_DESCRIPTION	0x0080		*	
MANUFACTURER_LABEL	0x0081		*	
DEVICE_LABEL	0x0082		*	*
SOFTWARE_VERSION_LABEL	0x00C0	*	*	
DMX_START_ADDRESS	0x00F0	*	*	*
SENSOR_DEFINITION	0x0200		*	
SENSOR_VALUE	0x0201		*	*
IDENTIFY_DEVICE	0x1000	*	*	*

6. Troubleshooting

This troubleshooting guide contains solutions to problems which can be carried out by an ordinary person. The device does not contain user-serviceable parts.

Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Refer servicing to instructed or skilled persons. Contact your Highlite International dealer in case the solution is not described in the table.

Problem	Probable cause(s)	Solution
The device does not function at all	No power to the device	• Check if power is switched on and cables are plugged in
	Main fuse is blown	• Replace the fuse. See **7.3.1. Replacing the Fuse** on page 18
No DMX data transfer	Bad data link connection	• Examine connections and cables. Correct poor connections. Repair or replace damaged cables
	The signal is reversed. The 3-pin DMX OUT of the controller does not match the DMX IN of the device	• Install a phase-reversing cable between the controller and the device
	The last device on the data link before the input is defective	• Remove or replace the last device on the data link before the input and check if normal operation is restored

7. Maintenance

7.1. Safety Instructions for Maintenance

DANGER
Electric shock caused by dangerous voltage inside

Disconnect power supply before servicing or cleaning.

7.2. Preventive Maintenance

Attention
Before each use, examine the device visually for any defects.

Make sure that:

- All screws used for installing the device or parts of the device are tightly fastened and are not corroded.
- The safety devices are not damaged.
- There are no deformations on housings, fixations and installation points.
- The power cables are not damaged and do not show any material fatigue.

7.2.1. Basic Cleaning Instructions

To clean the device, follow the steps below:

01) Disconnect the device from the electrical power supply.
02) Allow the device to cool down for at least 15 minutes.
03) Remove the dust collected on the external surface with dry compressed air and a soft brush.
04) Clean the device with a soft, lint-free cloth.
05) Clean the DMX and other connections with a damp cloth.

Attention

- Do not immerse the device in liquid.
- Do not use alcohol or solvents.
- Make sure that the connections are fully dry before connecting the device to the power supply and to other devices.

7.3. Corrective Maintenance

The device does not contain user-serviceable parts. Do not open the device and do not modify the device.

Refer repairs and servicing to instructed or skilled persons. Contact your Highlite International dealer for more information.

7.3.1. Replacing the Fuse

DANGER
Electric shock caused by short-circuit

- Do not bypass the thermostatic switch or fuses.
- For replacement use fuses of the same type and rating only.

Power surges, short-circuit or incorrect electrical power supply may cause a fuse to burn out. If the fuse burns out, the device will not function anymore. If this happens, follow the steps below:

01) Disconnect the device from the electrical power supply.
02) Allow the device to cool down for at least 5 minutes.
03) Loosen the fuse cover with a screwdriver and remove the fuse holder.
04) If the fuse is brown or unclear, it is burned out. Remove the old fuse.
05) Insert a new fuse in the fuse holder. Make sure that the type and the rating of the replacement fuse are the same as the ones specified on the information label of the product.
06) Replace the fuse holder in the opening and tighten the fuse cover.

8. Deinstallation, Transportation and Storage

8.1. Instructions for Transportation

WARNING
Incorrect deinstallation can cause serious injuries and damage of property.

- Let the device cool down before dismounting.
- Disconnect power supply before deinstallation.
- Always observe the national and site-specific regulations during deinstallation and derigging of the device.
- Wear personal protective equipment in compliance with the national and site-specific regulations.

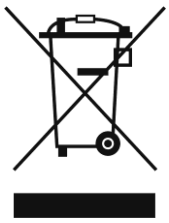
8.2. Instructions for Deinstallation

- Use the original packaging to transport the device, if possible.
- Always observe the handling instructions printed on the outer carton box, for example: “Handle with care”, “This side up”, “Fragile”.

8.3. Storage

- Clean the device before storing. Follow the cleaning instructions in chapter **7.2.1. Basic Cleaning Instructions** on page 17.
- Store the device in the original packaging, if possible.

9. Disposal



Correct disposal of this product

Disposal of Old Electrical and Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product, its packaging or documents indicates that the product shall not be treated as household waste. Dispose of this product by handing it to the applicable collection point for the recycling of electrical and electronic equipment. This is to avoid environmental damage or personal injury due to uncontrolled waste disposal. For more detailed information about recycling of this product contact the local authorities or the authorized dealer.

10. Approval

Check the respective product page on the website of Highlite International (www.highlite.com) for an available declaration of conformity.