ARTECTA
THE ART OF LIGHTING

USER MANUAL

Carlow 21-RGB 7/3   V3

Product code: A0720050

Preface

Thank you for purchasing this Artecta 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
- Intended and non-intended use of the device
- Installation and operation 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.

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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:

● Artecta Carlow 21-RGB 7/3
● 1 x Schuko to 3-pin (IP66) power cable (0,5 m)
● 1 x special power cable (1,5 m)
● User manual
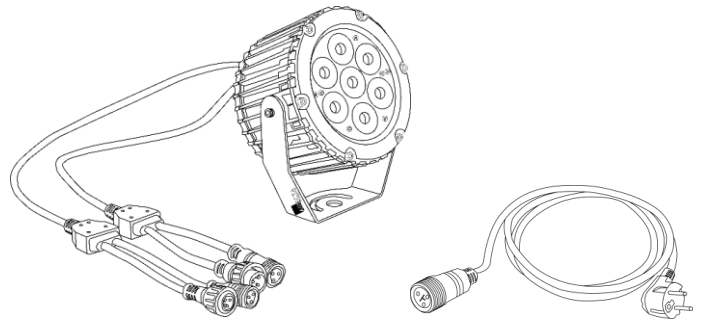
Fig. 01

1.2. Intended Use

This device is intended for professional use as an outdoor spot. It is not suitable for households and for general lighting.

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 operation. This will reduce the wear and will improve the device's lifespan.

1.4. LEDs Lifespan

The light output of the LEDs gradually decreases over time (lumen depreciation). High operating temperatures contribute to this process. You can extend the lifespan of the LEDs by providing adequate ventilation and operating the LEDs at the lowest possible brightness.

1.5. Text Conventions

Throughout the user manual the following text conventions are used:

● Buttons: All buttons are in bold lettering, for example "Press the **UP/DOWN** buttons"
● References: References to chapters and parts of the device are in bold lettering, for example: "Refer to **2. Safety**", "turn the **adjustment handle (05)**"
● 0–255:   Defines a range of values
● Notes: **Note:** (in bold lettering) is followed by useful information or tips

1.6.   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 death or serious injury.
⚠	**WARNING**	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠	**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.
⚡	**Electrical hazard**	
🗑		Provides important information about the disposal of this product.

1.7.   Symbols on the Information Label

This product is provided with an information label. The information label is located on the mounting bracket of the device.

The information label contains the following symbols:

🗑	This device shall not be treated as household waste.

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## 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 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, make sure that 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.
● 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.

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> ⚠️ **WARNING**
> **Risk of epileptic shock**

Strobe lighting can trigger seizures in photosensitive epilepsy. Sensitive persons should avoid looking at strobe lights.

> ❗ **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**
> **General safety**

- Do not connect the device to a dimmer pack.
- Do not switch the device on and off in short intervals. This decreases the device's life.
- Do not shake the device. Avoid brute force when installing or operating the device.
- Change the lens or the LEDs if they are visibly damaged to such an extent that their effectiveness is impaired, for example by cracks or deep scratches. Contact your Highlite International dealer for more information, as servicing can be performed only by instructed or skilled persons.
- If the device is dropped or struck, disconnect the device from the electrical power supply immediately.
- If the device is exposed to extreme temperature variations (e.g. after transportation), do not switch it on immediately. Let the device reach room temperature before switching it on, otherwise it may be damaged by the formed condensation.
- If the device fails to work properly, discontinue the use immediately.

> ❗ **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 professional outdoor spot. Any incorrect use may lead to hazardous situations and result in injuries and material damage.

- This device is not suitable for households and for general lighting.
- 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.

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> **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 lens is not cracked or damaged.
- 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 IP66 rated. IP (Ingress Protection) 66 class means that the device is dust-tight and protected against harmful effect of powerful water jets or of heavy seas.

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. Maintenance may be carried by ordinary persons. Installation and service 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 installation, service and maintenance 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.

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3.   Description of the Device

The Artecta Carlow 21-RGB 7/3 is a 7 x 3 W RGB LED outdoor spot. The IP rating of the device is IP66. The device can be used for enhancement of the ambience of objects, buildings and scenes.

3.1.   Front View

01) 7 x 3 W RGB LEDs
02) Mounting bracket
03) 3-pin special DMX signal connector OUT
04) 3-pin special DMX signal connector IN
05) 3-pin special power connector OUT
06) 3-pin special power connector IN

Fig. 02

3.2.   Back View

07) LED display + control buttons
08) 2 x adjustment screw
09) Protective vent
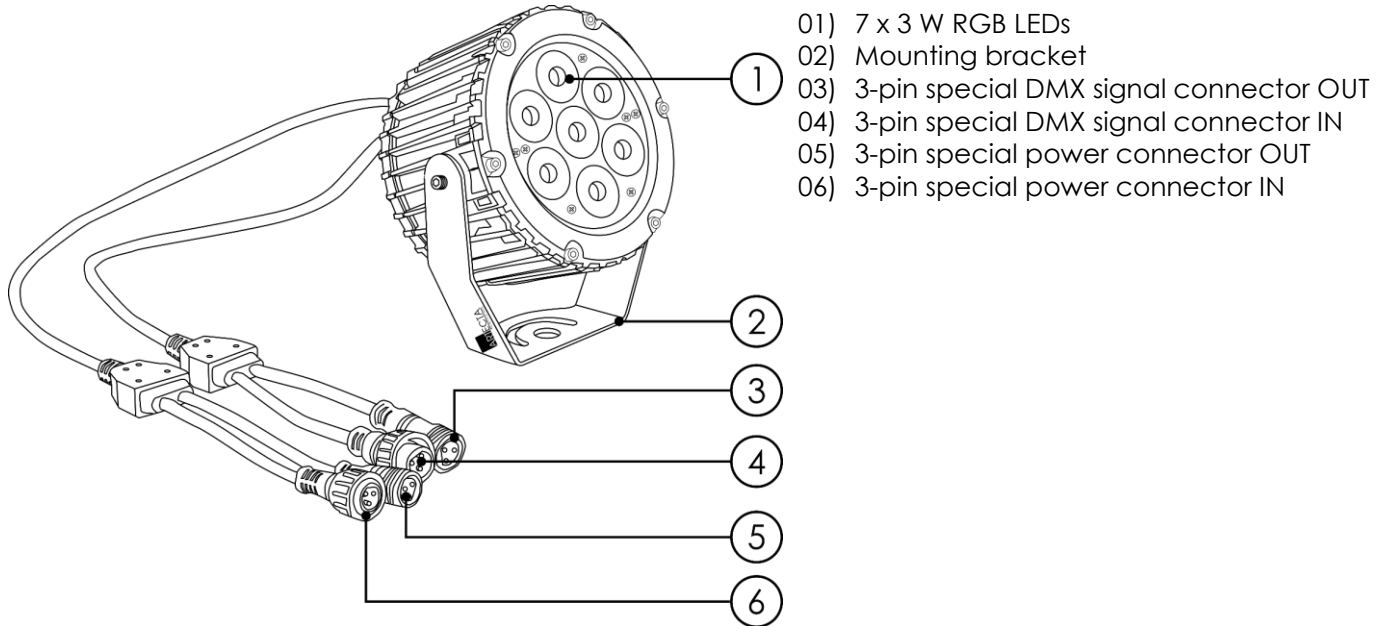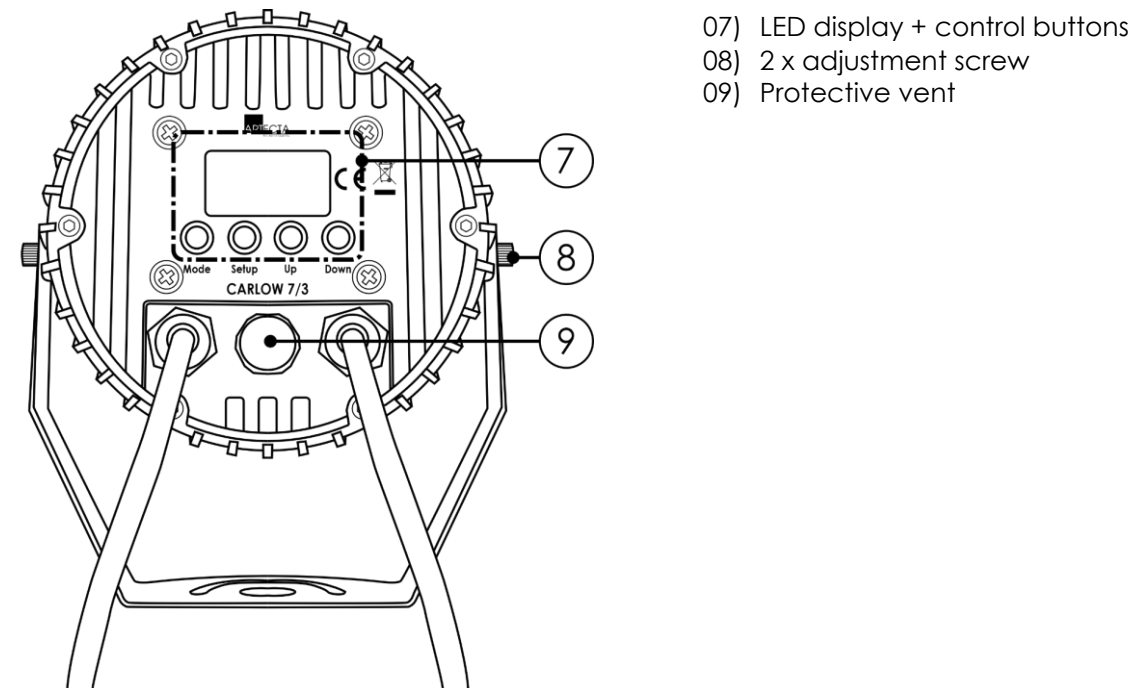
Fig. 03

3.3.   Product Specifications

Model:	Carlow 21-RGB 7/3

Electrical:	
Input voltage:	100–240 V AC, 50/60 Hz
Power consumption:	22 W

Physical:	
Dimensions:	156 x 98 x 178 mm (L x W x H)
Weight:	1,48 kg

Optics:	
Light source:	7 x 3 W RGB LEDs
Dimmer:	0–100 %
Beam angle (circular):	18°
Strobe:	0–20 Hz
Lumen Total:	630 lm
Operation and control:	
Control:	Stand-alone (Manual, Auto, Built-in Programs) Remote control Master/Slave DMX-512
DMX channels:	3, 5, 7 channels
Control panel:	LED display and buttons

Connections:	
Power connections:	IP66-rated power connectors IN/OUT
Data connections:	IP66-rated DMX connectors IN/OUT

Construction:	
Housing:	Aluminum
Color:	Dark gray
IP rating:	IP66
Cooling:	Convection

Thermal:	
Maximum ambient temperature t_a:	40 °C
Minimum ambient temperature:	-20 °C

Minimum distance:	
Minimum distance from flammable surfaces:	0,5 m
Minimum distance to lighted object:	1 m

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3.4. Optional Accessories

You can additionally purchase the following accessories:

42698 (Power Extension End Cap Set, Male/female)
42699 (DMX Extension End Cap Set, Male/female)
42704 (IR Controller for Cameleon/Carlow RGB)
42705 (Power Extension Cable for Cameleon Series, 3 m)
42706 (Power Connection Cable for Cameleon Series, 3 m)
42707 (DMX Extension Cable for Cameleon Series, 3 m)
42708 (DMX Input Cable for Cameleon Series, 3 m)
427056 (Power Extension Cable for Cameleon Series, 6 m)
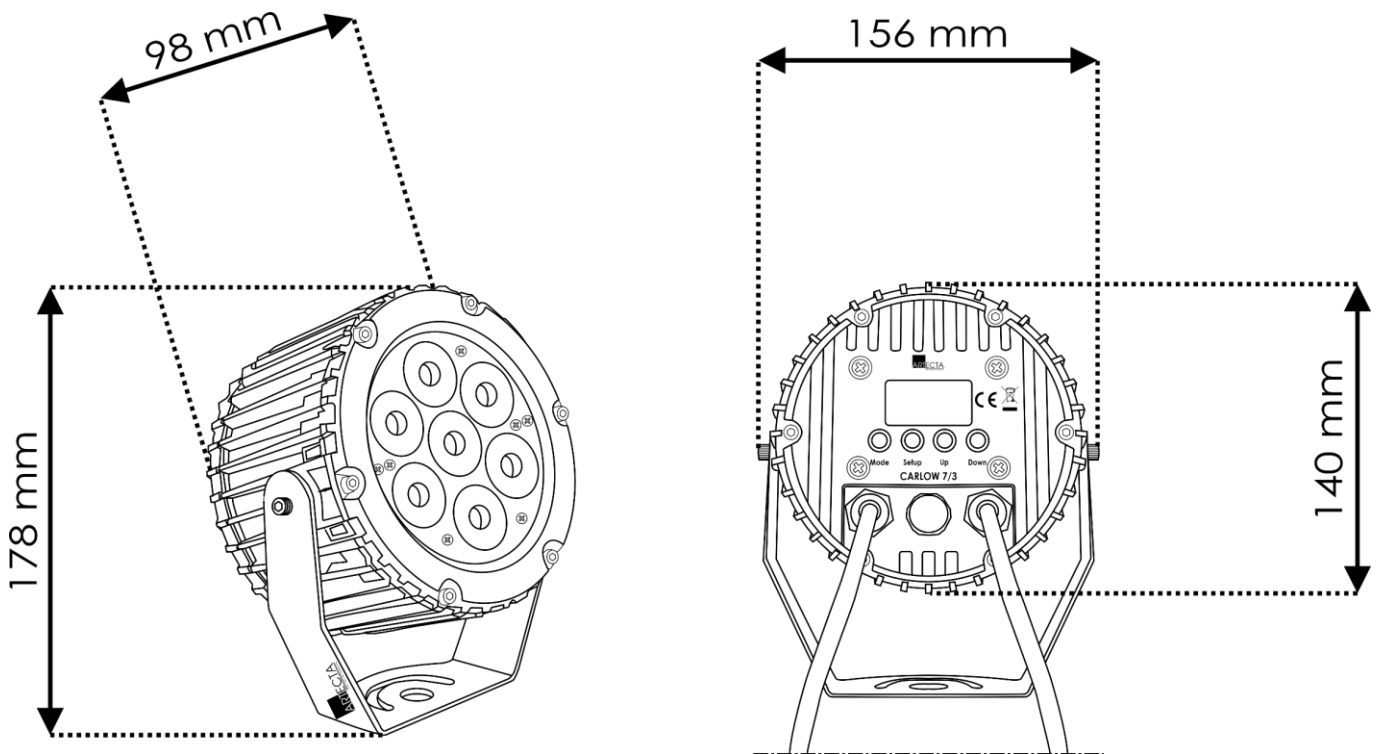427076 (DMX Extension Cable for Cameleon Series, 6 m)

3.5. Dimensions

Fig. 04

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. Personal Protective Equipment

During installation and rigging wear personal protective equipment in compliance with the national and site-specific regulations.

4.3. Installation Site Requirements

- The device can be used outdoors.
- The device can be mounted to a truss or other rigging structure in any orientation.
- The minimum distance between the light output and the illuminated surface must be bigger than 1 m.
- The maximum ambient temperature t_a = 40 °C must never be exceeded.

4.4. Rigging

The device can be positioned on a flat surface or be mounted on a truss or other rigging structure in any orientation. 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, follow the steps below:

01) Use a clamp to attach the device to the supporting structure, as shown in Fig. 05. 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 **mounting bracket (02)**, as shown in Fig. 05.
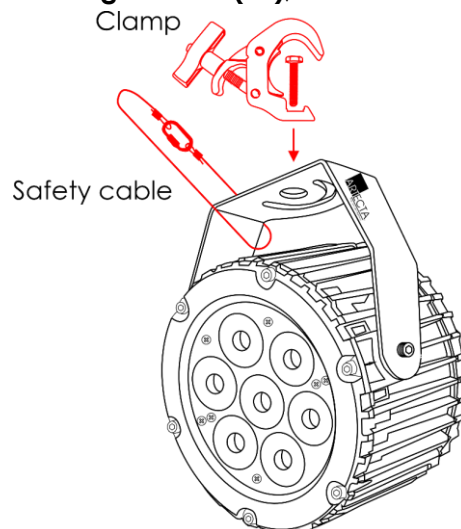

Fig. 05

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4.4.1. Angle Adjustment

You can adjust the angle of the device with the 2 **adjustment screws (08)**. To adjust the angle, you need a hex key (size 4).

01) Use the hex key to turn both **adjustment screws (08)** counterclockwise to release them.
02) Tilt the device to the desired angle (see Fig. 06).
03) Use the hex key to turn the **adjustment screws (08)** clockwise to tighten them. Make sure that the device cannot move freely after the **adjustment screws (08)** are tightened.
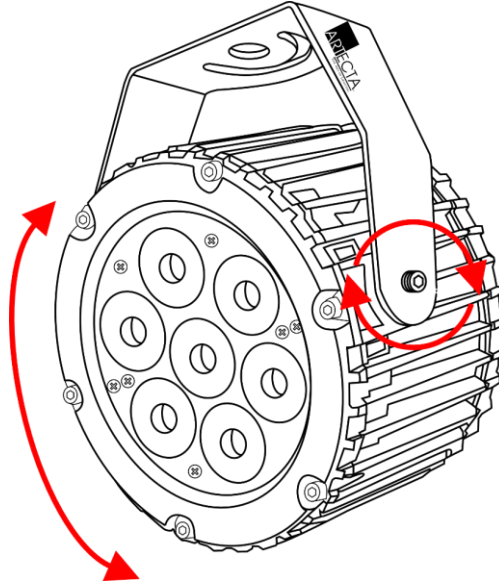

Fig. 06

4.5. Connecting to Power Supply

> ⚠️ **DANGER**
> **Electric shock caused by short-circuit**

The device accepts AC mains power at 100–240 V and 50/60 Hz. 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. Do not connect the device to a dimmer circuit, as this may damage the device.

This device is IP66 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.

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4.6. 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 100–120 V: 19 devices
- at 200–240 V: 35 devices

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5.   Setup

5.1.   Warnings and Precautions

> **DANGER**
> **Electric shock caused by short-circuit**

This device is IP66 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.

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

5.2.   Stand-alone Setup

When the Carlow 21-RGB 7/3 is not connected to a controller or to other devices, it functions as a stand-alone device.

For more information about the control modes, refer to **6.2. Control Modes** on page 18.

5.3.   DMX Connection

5.3.1.   DMX-512 Protocol

You need a DMX serial data link to run light shows of one or more devices using a DMX-512 controller or to run synchronized shows of two or more devices set in a master/slave control mode.

The Carlow 21-RGB 7/3 has IP-66 rated special DMX signal IN and OUT connectors.

Devices on a serial data link must be daisy-chained in a single line. The number of devices that you can control on one data link is limited by the combined number of the DMX channels of the connected devices and the 512 channels available in one DMX universe.

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 must use a DMX optically isolated splitter/booster, otherwise this may result in deterioration of the DMX signal.

Note:
- Maximum recommended DMX data link distance: 300 m
- Maximum recommended number of devices on a DMX data link: 32 devices

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5.3.2. DMX Cables

Shielded twisted-pair cables with 5-pin XLR connectors must be used for reliable DMX connection. You can purchase DMX cables directly from your Highlite International dealer or make your own cables.

If you use 3-pin 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. 07.
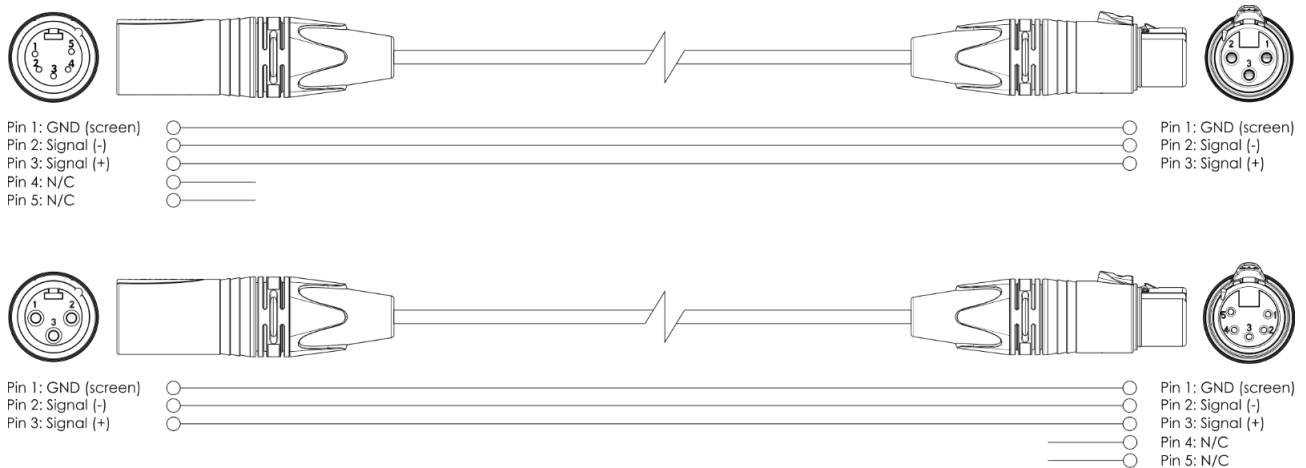

Pin 1: GND (screen)	Pin 1: GND (screen)
Pin 2: Signal (-)	Pin 2: Signal (-)
Pin 3: Signal (+)	Pin 3: Signal (+)
Pin 4: N/C	
Pin 5: N/C	

Pin 1: GND (screen)	Pin 1: GND (screen)
Pin 2: Signal (-)	Pin 2: Signal (-)
Pin 3: Signal (+)	Pin 3: Signal (+)
	Pin 4: N/C
	Pin 5: N/C

Fig. 07

5.3.3. Master/Slave Setup

The Carlow 21-RGB 7/3 supports master/slave control mode. To connect multiple devices in a master/slave setup, follow the steps below:

01) Connect the first device's DMX OUT connector to the second device's DMX IN connector with an extension cable (see **3.4. Optional Accessories** on page 11) . The first connected device in the setup will be automatically recognized as the master device.
02) Repeat step 1 to connect all devices as shown in Fig. 08.
03) Set all subsequent devices in the setup as slave devices. See **6.6.5. Slave Mode** on page 22 for more information.
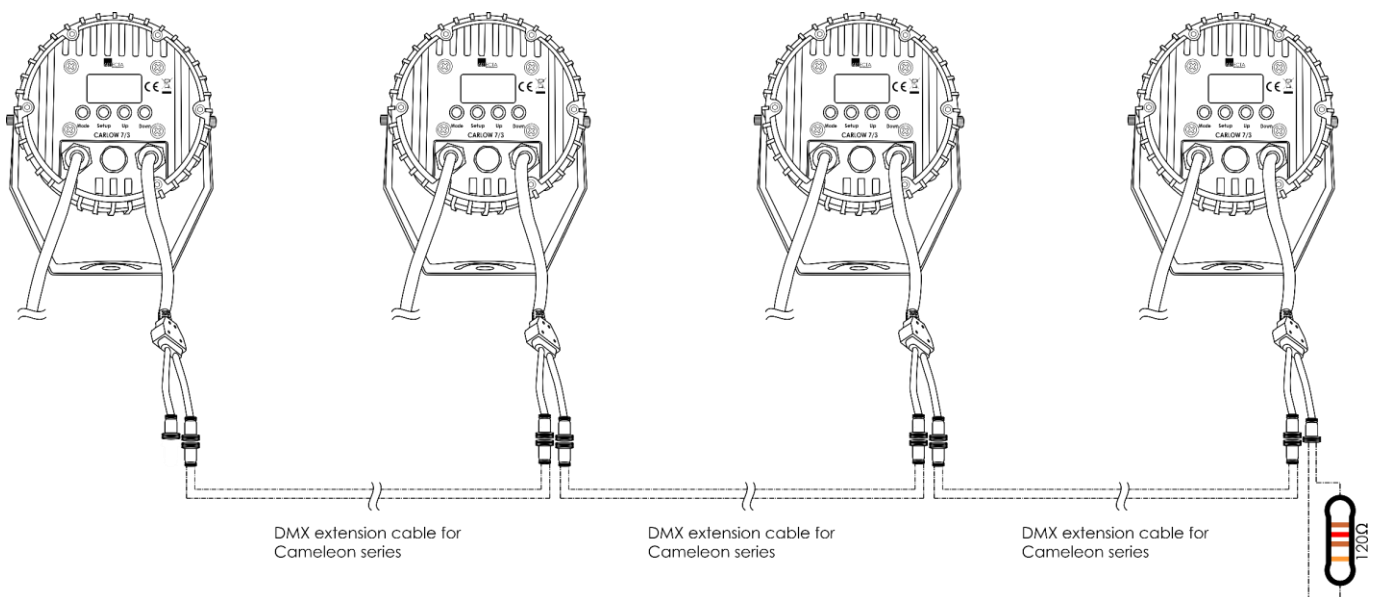04) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device in the setup.

DMX extension cable for Cameleon series

DMX extension cable for Cameleon series

DMX extension cable for Cameleon series

Fig. 08

5.3.4. DMX Linking

To connect multiple devices on one DMX data link, follow the steps below:

01) Use a DMX input cable to connect the DMX OUT connector of the lighting controller to the DMX IN connector of the first device. See **3.4. Optional Accessories** on page 11.
02) Connect the first device's DMX OUT connector to the second device's DMX IN connector.
03) Repeat step 2 to connect all devices in a daisy-chain as shown in Fig. 09.
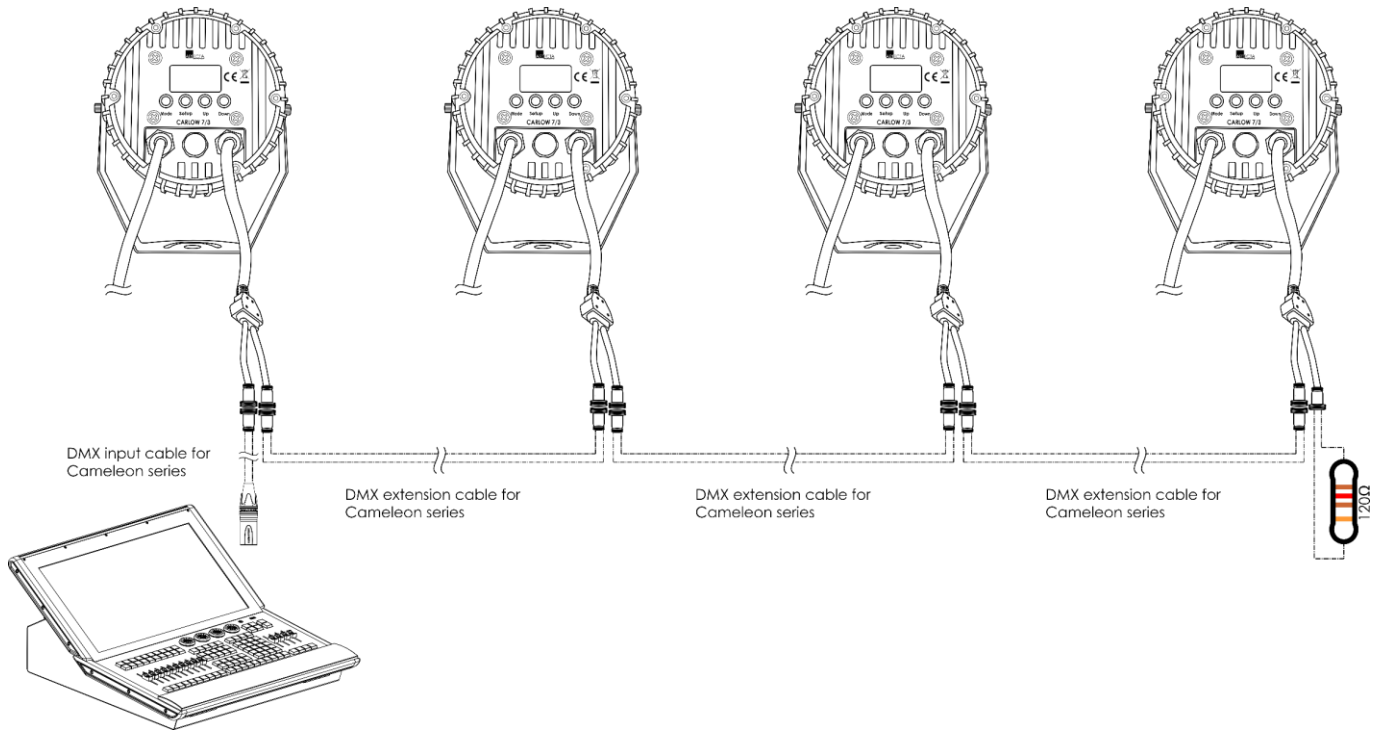04) Connect a DMX terminator (120 Ω resistor) to the DMX OUT connector of the last device on the data link.

Fig. 09

5.3.5. DMX Addressing

In a setup with multiple devices, make sure that you set the DMX starting address of each device correctly. The Carlow 21-RGB 7/3 has 3 personalities: 3, 5 and 7 channels.

If you want to connect multiple devices on one data link and use them in 7-channel mode, for example, follow the steps below:

01) Set the starting address of the 1st device on the data link to 1 (001).
02) Set the starting address of the 2nd device on the data link to 8 (008), as 1 + 7 = 8.
03) Set the starting address of the 3rd device on the data link to 15 (015), as 8 + 7 = 15.
04) Continue assigning the starting addresses of the remaining devices by adding each time 7 to the previous number.

Make sure that you do not have any overlapping channels in order to control the Carlow 21-RGB 7/3 correctly. If two or more devices are addressed similarly, they will work similarly.

6. Operation

6.1. Safety Instructions for Operation

> **Attention**
> **This device must be used only for the purposes it is designed for.**

This device is intended for professional use as an outdoor spot. It is not suitable for households and for general lighting.

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

> **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.

6.2. Control Modes

The Carlow 21-RGB 7/3 can be operated with a DMX controller, or without a DMX controller as a stand-alone device or in a master/slave setup.

The Carlow 21-RGB 7/3 supports the following control modes:

- Stand-alone: Manual, Auto, Built-in Programs
- Remote control
- Master/Slave: Manual, Auto, Built-in Programs
- DMX-512:   3, 5, 7 channels

For more information about how to connect the devices, refer to **5. Setup** on pages 15–17.

To run the auto program, in auto operation mode, select Auto in the Main Menu. See **6.6.1. Auto Mode** on page 21 for more information.

To operate the device manually as a stand-alone device, adjust the intensity values for the colors.
See **6.6.3. Manual Mode** on page 21 for more information.

To run one of the built-in programs without a DMX controller:

01) Select Built-in Programs in the Main Menu.
02) Select one of the 12 static colors (Program 1) or one of the 6 built-in chases (Programs 2–7). See **6.6.2. Built-in Programs** on page 21 for more information.

To operate multiple devices in the master/slave mode:

01) Use the first device as a master and use the remaining devices as slaves. See **6.6.5. Slave Mode** on page 22 for more information.
02) Operate the master device in the Auto mode, Manual mode or Built-in Programs mode. For more information, see **6.6.1. Auto Mode** , **6.6.2. Built-in Programs** and **6.6.3. Manual Mode** on page 21.

To operate the device with a DMX controller:

01) Set the DMX starting address of the device in the Address menu. See **5.3.5. DMX Addressing** on page 17 and **6.6.4. DMX-512 Mode** on page 22.
02) Select the DMX channel mode. See **6.6.4. DMX-512 Mode** on page 22 for more information. See **6.7. DMX Channels** on page 22 for complete overview of all DMX channels.
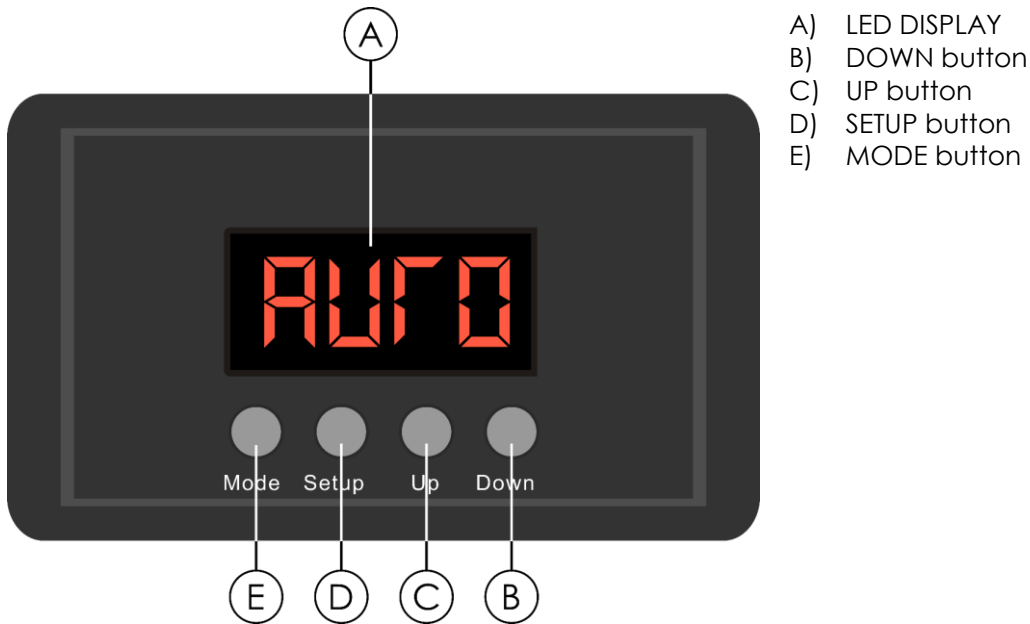
6.3. Control Panel

A) LED DISPLAY
B) DOWN button
C) UP button
D) SETUP button
E) MODE button

Fig. 10

- Use the **MODE** button to open the main menu or to exit the current submenu and return to the main menu.
- Use the **UP/DOWN** buttons to navigate through the menus or to increase/decrease numeric values.
- Use the **SETUP** button to open menus, to confirm choices or to set values.

6.4. Start-up

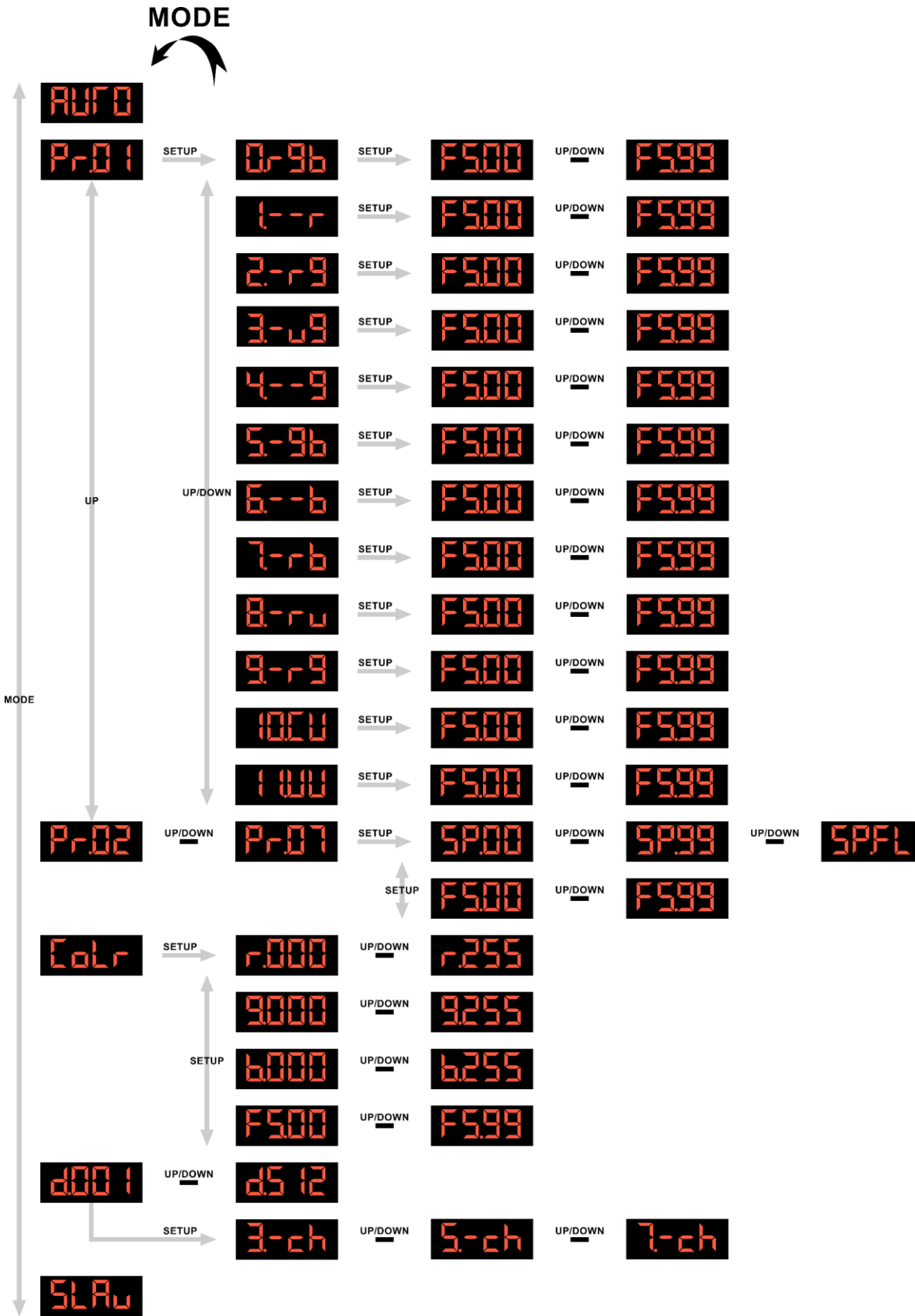Upon start-up the display shows a splash screen with the current firmware version:

Afterwards, the display shows the last used operation mode.

Note:

If no button is pressed, after 10 seconds of inactivity the display will turn off. Press any button to turn on the display.

6.5. Menu Overview

MODE

AUTO			
Pr.01 → SETUP	**0.rgb** → SETUP	**FS.00** UP/DOWN	**FS.99**
	1.--r → SETUP	**FS.00** UP/DOWN	**FS.99**
	2.-rg → SETUP	**FS.00** UP/DOWN	**FS.99**
	3.-wg → SETUP	**FS.00** UP/DOWN	**FS.99**
	4.--g → SETUP	**FS.00** UP/DOWN	**FS.99**
	5.-gb → SETUP	**FS.00** UP/DOWN	**FS.99**
	6.--b → SETUP	**FS.00** UP/DOWN	**FS.99**
	7.-rb → SETUP	**FS.00** UP/DOWN	**FS.99**
	8.-rw → SETUP	**FS.00** UP/DOWN	**FS.99**
	9.-rg → SETUP	**FS.00** UP/DOWN	**FS.99**
	10.CW → SETUP	**FS.00** UP/DOWN	**FS.99**
	11.WW → SETUP	**FS.00** UP/DOWN	**FS.99**

Pr.02 UP/DOWN **Pr.07** → SETUP → **SP.00** UP/DOWN **SP.99** UP/DOWN **SPFL**

SETUP → **FS.00** UP/DOWN **FS.99**

CoLr → SETUP	**r.000** UP/DOWN	**r.255**
	g.000 UP/DOWN	**g.255**
SETUP	**b.000** UP/DOWN	**b.255**
	FS.00 UP/DOWN	**FS.99**

d.001 UP/DOWN **d.512**

SETUP → **3.ch** UP/DOWN **5.ch** UP/DOWN **7.ch**

SLAv

UP | UP/DOWN | UP/DOWN | MODE

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6.6.   Main Menu Options

The main menu has the following options:

AUTO	Auto Mode (See **6.6.1. Auto Mode**)
Pr.01	Built-in Programs (See **6.6.2. Built-in Programs**)
CoLr	Manual Mode (See **6.6.3. Manual Mode**)
d001	DMX-512 Mode/DMX Channel Modes (See **6.6.4. DMX-512 Mode**)
SLAu	Master/Slave (See **6.6.5. Master/Slave Mode**)

6.6.1.   Auto Mode

The device will run the built-in auto show.

6.6.2.   Built-in Programs

In this menu you can select one of the 7 built-in programs.

01) Press the **UP/DOWN** buttons to select one of the 7 built-in programs.
02) Press the **SETUP** button to confirm.

6.6.2.1. Program 1

In this submenu you can select one of the 12 static colors.

01) Press the **UP/DOWN** buttons to select one of the 12 static colors.
02) Press the **SETUP** button to open the strobe settings. The adjustment range is between 0–99, from low to high frequency.
03) Press the **SETUP** button to confirm.

6.6.2.2. Programs 2–7

In this submenu you can select one of the 6 built-in programs.

01) Press the **UP/DOWN** buttons to select one of the 6 built-in programs.
02) Press the **SETUP** button to open the program speed settings. The adjustment range is between 0–99 (from slow to fast) and FL (full speed).
03) Press the **SETUP** button to open the strobe settings. The adjustment range is between 0–99, from low to high frequency.
04) Press the **SETUP** button to confirm.

6.6.3.   Manual Mode

In this menu you can create a custom color and add strobe effect.

01) Press the **UP/DOWN** buttons to select one of the 3 colors (red, green, blue).
02) Press the **SETUP** button to open the submenu.
03) Press the **UP/DOWN** buttons to increase/decrease the values:
- **r000**: Set the intensity of the red color. The adjustment range is 0–255, from low to high intensity
- **9000**: Set the intensity of the green color. The adjustment range is 0–255, from low to high intensity
- **b000**: Set the intensity of the blue color. The adjustment range is 0–255, from low to high intensity
- **FS00**: Add strobe effect. The adjustment range is 0–99, from OFF to high frequency
04) Press the **SETUP** button to set the value and to move to the next setting.

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6.6.4. DMX-512 Mode

In this menu you can set the DMX starting address of the device and select the DMX channel mode.

01) Press the **UP/DOWN** buttons to select the DMX starting address of the device. The selection range is 001–512. Refer to **5.3.5. DMX Addressing** on page 17 for more information.
02) Press the **SETUP** button to confirm and to open the DMX channel mode settings.
03) Press the **UP/DOWN** buttons to select one of the 3 DMX channel modes.

- **3-ch**:   3-channel mode
- **5-ch**:   5-channel mode
- **7-ch**:   7-channel mode

04) Press the **SETUP** button to confirm.

Note:

See **6.7. DMX Channels** on page 22 for complete overview of all DMX channels.

6.6.5. Slave Mode

When this menu is active, the device is operating as a slave device in master/slave control mode.

6.6.6. Reset

You can restore the default factory settings of the device.

Press and hold down the **MODE** and **SETUP** buttons until the settings are reset. The device will start up in Auto mode.

6.7. DMX Channels

6.7.1. 3 channels, 5 channels, 7 channels

3 CH	5 CH	7 CH	Function	Value	Setting
	1	1	**Master Dimmer**	000–255	From low to high intensity (0–100 %)
1	2	2	**Red**	000–255	From low to high intensity (0–100 %)
2	3	3	**Green**	000–255	From low to high intensity (0–100 %)
3	4	4	**Blue**	000–255	From low to high intensity (0–100 %)
		5	**Built-in Programs**	000–029	No function
				030–059	Auto program 1 (Auto mode)
				060–089	Auto program 2
				090–119	Auto program 3
				120–149	Auto program 4
				150–179	Auto program 5
				180–209	Auto program 6
				210–255	Auto program 7
		6	**Speed**	000–255	Speed adjustment, from slow to fast
	5		**Linear Strobe**	000–009	No function
				010–255	From low to high frequency (0–20 Hz)
		7	**Program Strobe**	000–255	From low to high frequency (0–20 Hz)

Note:

- Make sure that the Master Dimmer channel is open, to see the light output (in 5 CH and 7 CH modes).
- For the Speed channel to work, make sure that the Built-in Programs channel is set between 30–255.
- For the Program Strobe channel to work, make sure that the Built-in Programs channel is set between 30–255.

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6.8.   Remote Control

The device can be controlled with an IR remote control (42704).

> ⚠ **DANGER**
> **Do not ingest battery, chemical burn hazard**

The remote control contains a coin cell battery. If the coin cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.

The battery is already installed in the remote control. It is protected against discharge by a transparent plastic foil. Remove the plastic foil before using the remote control for the first time.

When replacing the battery, make sure that the polarity is correct. Incorrect polarity may damage the remote control.

You can control several devices at the same time with the remote control. Make sure that you point the remote control at the device or group of devices that you want to control, as shown in Fig. 11. If you point the remote control at the device outside of the range of the sensor, the device will not respond to the remote control (Fig. 12).
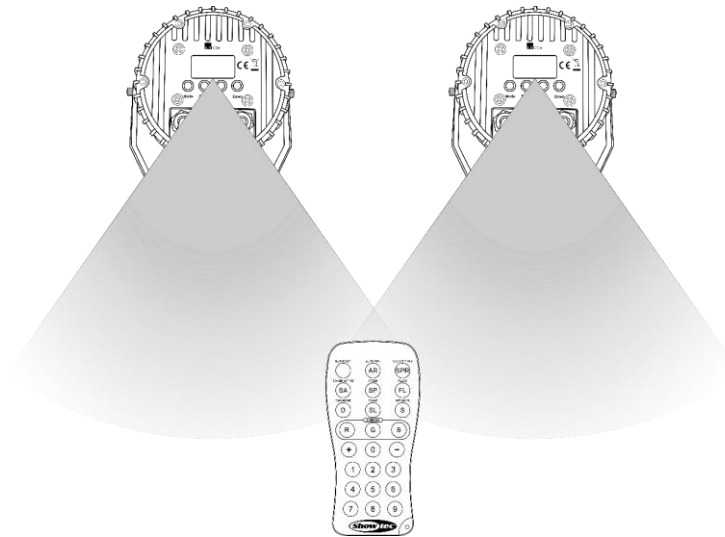
Fig. 11
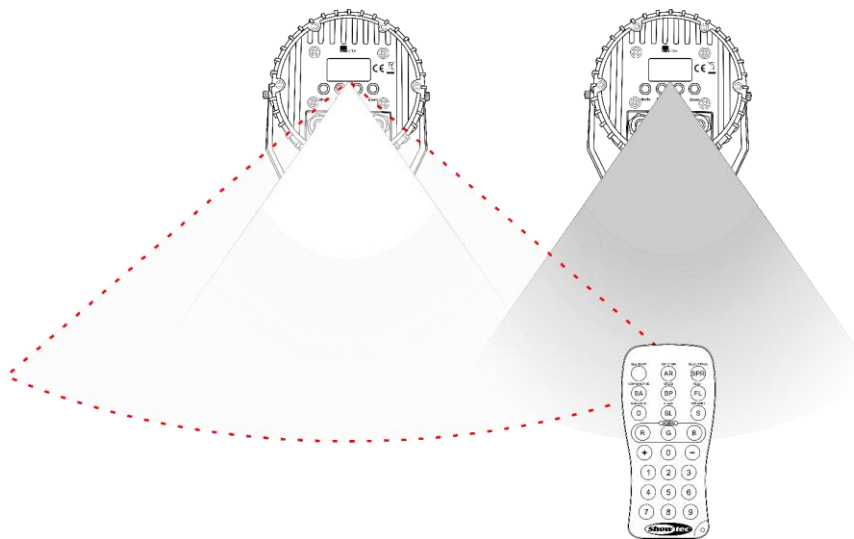
Fig. 12

To operate the device with the IR remote control, point the remote control at the device. The remote control has the following functions:
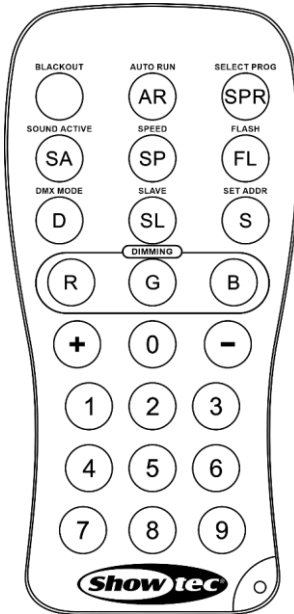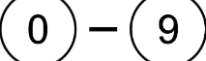
Fig. 13

Button	Function	Description
BLACKOUT	Blackout	Turns the LEDs on/off
AUTO RUN (AR)	Auto Run	Activates Auto mode
SELECT PROG (SPR)	Program Mode	Activates Built-in programs
SOUND ACTIVE (SA)	Sound-controlled Mode	No function
SPEED (SP)	Speed	Adjusts program speed
FLASH (FL)	Flash	Adjusts strobe frequency
DMX MODE (D)	DMX Mode	Activates DMX mode
SLAVE (SL)	Slave	Activates Slave mode
SET ADDR (S)	Set Address	Setting DMX Address
R G B	Red/Green/Blue	Activates Manual mode
+ –	Plus/Minus	Increases/decreases values
0 – 9	Numeric buttons	Enables manual input

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6.8.1. Auto Mode

AUTO RUN

Press the (AR) button. The device will run the built-in auto show.

6.8.2. Built-in Programs

In this menu you can select one of the 6 built-in programs (2–7), add strobe effect and set the program speed.

SELECT PROG

01) Press the (SPR) button to activate built-in programs.
02) Press the numeric buttons (2–7) to select one of the 6 built-in programs.

SPEED

03) Press the (SP) button and press the (+) (−) buttons to increase/decrease the program speed. The adjustment range is between 0–99 (from slow to fast) and FL (full speed).

FLASH

04) Press the (FL) button and press the (+) (−) buttons to increase/decrease the strobe frequency. The adjustment range is between 0–99, from low to high frequency.

FLASH

05) Press the (FL) button to turn off the strobe. Otherwise, it will not be possible to edit other settings.

6.8.3. Manual Mode

In this menu you can create a custom color or select one of the 9 static colors.

6.8.3.1. Custom Color

01) Press the (R) (G) (B) buttons to select one of the 3 colors (red, green, blue).

02) Press the (+) (−) buttons to increase/decrease the intensity of the red, green or blue color. The adjustment range is 0–255, from low to high intensity. You can combine red, green and blue to create an infinite range of colors.

Note:

Adjust the intensity of the RGB colors to create a custom color.

6.8.3.2. Static Colors

01) Press the (R) (G) (B) buttons to select one of the 3 colors (red, green, blue).
02) Press the numeric buttons (0–9) to select one of the 9 static colors. It is not possible to select static colors 10 and 11 with the remote control.

FLASH

03) Press the (FL) button and press the (+) (−) buttons to increase/decrease the strobe frequency. The adjustment range is between 0–99, from low to high frequency.

FLASH

04) Press the (FL) button to turn off the strobe. Otherwise, it will not be possible to edit other settings.

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6.8.4. DMX-512 Mode

In this menu you can set the DMX starting address of the device. The selection range is 001–512. Refer to
5.3.5. DMX Addressing on page 17 for more information.

01) Press the **D** button to activate DMX-512 mode.

02) Press the **S** button to change the DMX starting address. The LEDs will blink 3 times.
03) Press the numeric buttons (0–9) to enter a new DMX starting address. The LEDs will blink each time
you press the numeric buttons. When the new DMX starting address is entered, the LEDs will blink 3
times.

6.8.5. Slave Mode

When this menu is active, the device is operating as a slave device in master/slave control mode.

Press the **SL** button to activate Slave mode.

6.8.6. Blackout

It is possible to turn the light output on/off at any time.

Press the button to turn the light output off. Press the button again to turn the light output on.

6.8.7. Reset

You can restore the default factory settings of the device.

01) Press the button to turn the light output off.
02) Press the numeric buttons in this order: 9, 8 and 7. When the default factory settings are restored, the
device will start up in Auto mode.

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7.   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	● Make sure that power is switched on and cables are plugged in
	Internal fuse is blown	● Disconnect the device and contact your Highlite International dealer
The device responds erratically	The factory settings of the device are changed	● Reset the device's parameters to the default factory settings. See **6.6.6. Reset** on page 22
The device does not respond to DMX control	The controller is not connected	● Connect the controller
	The signal is reversed. The 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 controller is defective	● Try using another controller
The device responds erratically to DMX control	Bad data link connection	● Examine connections and cables. Correct poor connections. Repair or replace damaged cables
	The data link is not terminated with a 120 Ω termination plug	● Insert a termination plug in the DMX OUT connector of the last device on the link
	Incorrect addressing	● Examine the address settings and correct, if necessary
	In case of a setup with multiple devices, one of the devices is defective and disturbs data transmission on the link	● To find out which device is defective, bypass one device at a time until normal operation is restored
No light or LEDs cut out intermittently	LEDs are damaged	● Disconnect the device and contact your Highlite International dealer
	The power supply settings do not match local AC voltage and frequency	● Disconnect the device. Examine the settings and correct, if necessary
The device does not respond to the remote control	The remote control is outside the range of the sensor of the infrared port	● Walk closer to the device or change the angle at which you point the remote control to the device. See **6.8. Remote Control** on page 23
	The batteries in the remote control are depleted	● Change the battery of the remote control

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8. Maintenance

8.1. Safety Instructions for Maintenance

> ⚠️ **DANGER**
> **Electric shock caused by dangerous voltage inside**

Disconnect power supply before servicing or cleaning.

8.2. 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 lens is not cracked or damaged.
- The power cables are not damaged and do not show any material fatigue.

8.2.1. Basic Cleaning Instructions

The external lens of the device must be cleaned periodically in order to optimize the light output. The cleaning schedule depends on the conditions at the site where the device is installed. When smoke or fog machines are used at the site, the device will need more frequent cleaning. On the other hand, if the device is installed in well-ventilated area, it will need less frequent cleaning. To establish a cleaning schedule, examine the device at regular intervals during the first 100 hours of operation.

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 5 minutes.
03) Remove the dust collected on the external surface with dry compressed air and a soft brush.
04) Clean the lens with a damp cloth. Use a mild detergent solution.
05) Dry the lens carefully with a lint-free cloth.
06) 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.

8.2.2. Draining Condensation Water

The Carlow 21-RGB 7/3 is IP66 rated. The device can resist powerful water jets and heavy seas. If the device is exposed to extreme humid conditions during servicing, condensation may collect inside the device. This can happen also during transportation, if the device is exposed to extreme temperature variations.

If condensation water collects inside the device, follow the steps below to remove the condensation water:

01) Carefully remove the **protective vent (09)** with a wrench (16 mm).
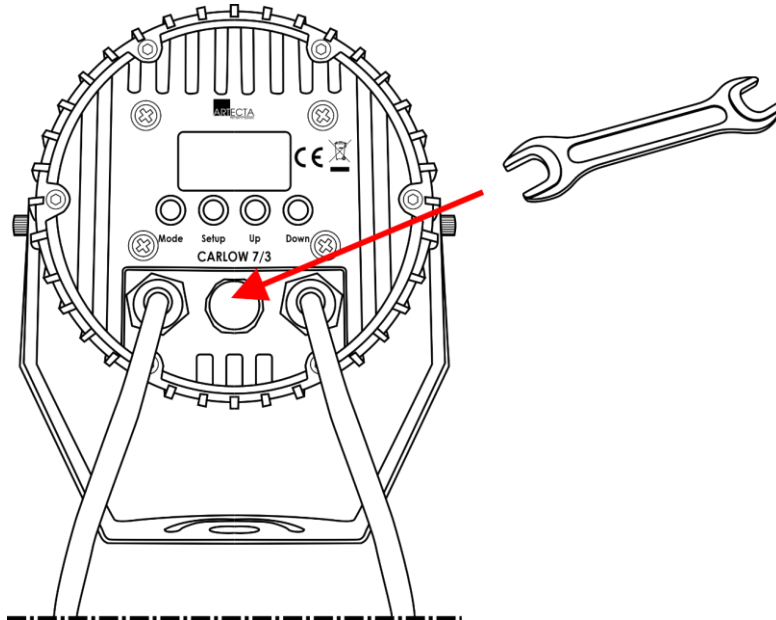

Fig. 14

02) Let the device operate at full output for 60 minutes.
03) Let the device cool down for 30 minutes.
04) Install the **protective vent (09)** back in place. Make sure that you do not overtighten it.

8.3. 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.

9. Deinstallation, Transportation and Storage

9.1. Instructions for Deinstallation

⚠️	**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.

9.2. Instructions for Transportation

- 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".

9.3. Storage

- Clean the device before storing. Follow the cleaning instructions in chapter **8.2.1. Basic Cleaning Instructions** on page 28.
- Store the device in the original packaging, if possible.

10. Disposal

Correct disposal of this product

Waste Electrical and Electronic Equipment

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 respective collection point for 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.

11. Approval

CE

UK
CA

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