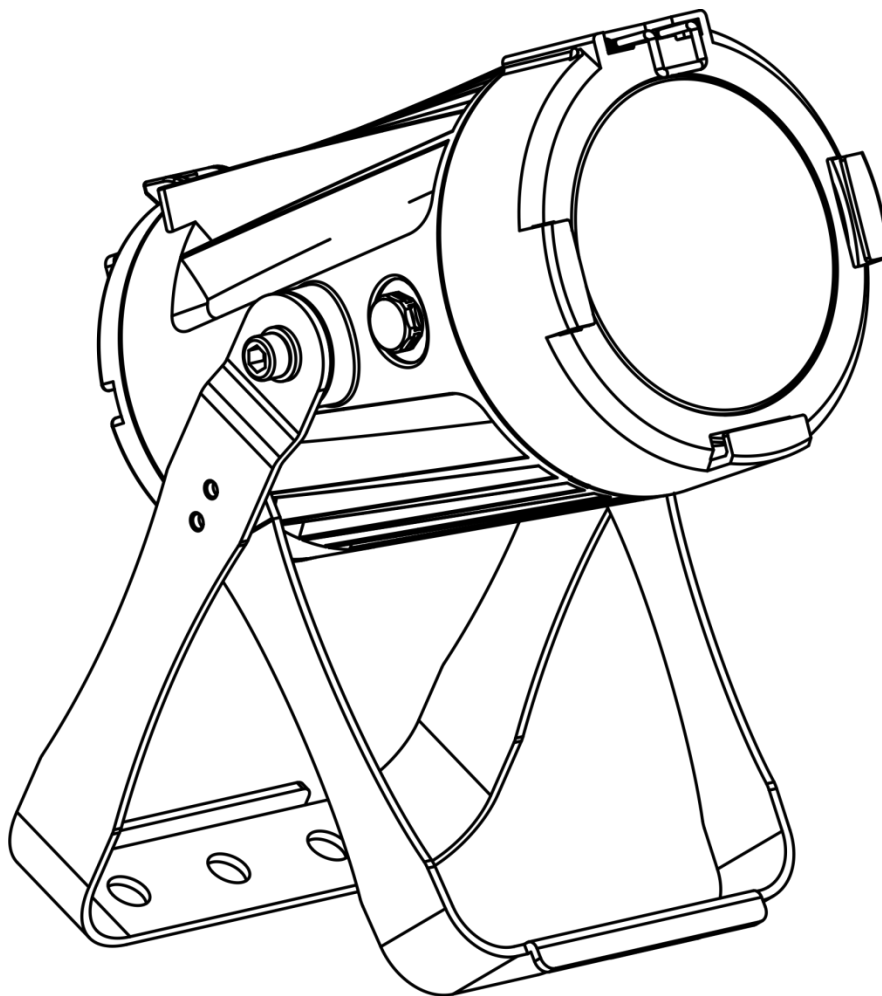




MANUAL



ENGLISH

Spectral PC 400Z IP

V1

Ordercode: 43554

Table of contents

Warning	3
Safety Instructions	3
Operating Determinations	5
Rigging	5
Connection with the mains	6
Return Procedure	7
Claims	7
Description of the device	8
Frontside	8
Backside	9
Installation	9
Set Up and Operation	9
Control Modes	10
One Spectral (Static Colors)	10
One Spectral (Built-in programs)	10
Multiple Spectrals (Master/Slave control)	10
Multiple Spectrals (DMX Control)	11
Fixture Linking	12
Data Cabling	12
Control Panel	13
Control Mode	13
DMX Addressing	13
Menu Overview	14
Main Menu Options	15
1. Static Colors	15
2. DMX Address	16
3. Built-in programs	16
4. Master/Slave Mode	16
5. Personality (DMX channel modes)	17
6. Edit Mode	17
6.1. How to make your own custom program	18
7. Settings	18
7.1. Upload	18
7.2. Reset	18
7.3. Color	19
7.4. Dimmer	19
7.5. DMX Error	19
7.6. PWM rate	19
7.7. Color temperature	19
7.8. Zoom Range	19
8. Safety lock	19
9. Calibration	20
9.1. White color calibration	20
9.2. Reset white color calibration	20
9.3. RGBW calibration	20
10. Software information	20
DMX Channels	21
9 channels (HSIC)	21
9 channels (SSP)	22
12 channels (TOUR)	23
17 channels (TR16)	25
Maintenance	27

Troubleshooting27
 No Light27
 No Response to DMX.....27

Product Specifications29

Dimensions.....30

Warning



**For your own safety, please read this user manual carefully
before your initial start-up!**

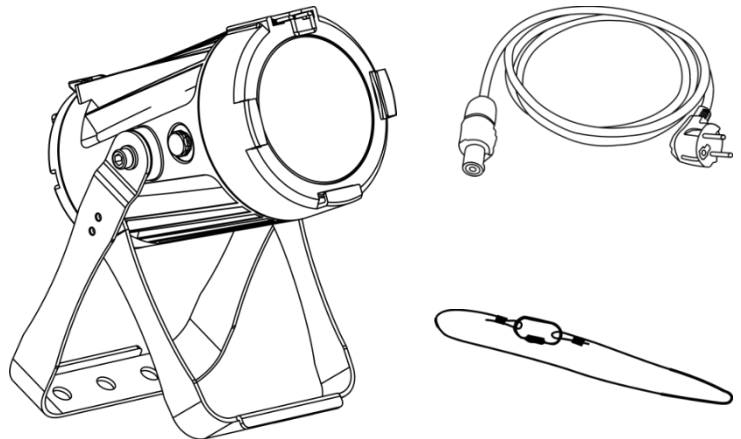


Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- Showtec Spectral PC 400Z IP
- Safety cable
- Schuko to Powercon power cable (1,5 m)
- User manual



LED Expected Lifespan

LEDs gradually decline in brightness over time. HEAT is the dominant factor that leads to the acceleration of this decline. Packaged in clusters, LEDs exhibit higher operating temperatures than in ideal or singular optimum conditions. For this reason, when all color LEDs are used at their fullest intensity, life of the LEDs is significantly reduced. If improving the lifespan is of higher priority, place care in providing for lower operational temperatures. This may include climatic-environmental and the reduction of overall projection intensity.



CAUTION!

**Keep this device away from rain and moisture!
Unplug mains lead before opening the housing!**



Safety Instructions

Every person involved with the installation, operation and maintenance of this device has to:

- be qualified
- follow the instructions of this manual



**CAUTION! Be careful with your operations.
With a dangerous voltage you can suffer
a dangerous electric shock when touching the wires!**



Before the initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the device.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes contained in this manual.

Please consider that damages caused by manual modifications to the device are not subject to warranty.

This device contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

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

- Never let the power cord come into contact with other cables! Handle the power cord and all connections with the mains with particular caution!
- Never remove warning or informative labels from the unit.
- Never use anything to cover the ground contact.
- Never lift the fixture holding it by the projector-head, as the mechanics may be damaged. Always hold the fixture by the transport handles.
- Never place any material over the lens.
- Never look directly into the light source.
- Never leave any cables lying around.
- Do not connect this device to a dimmerpack.
- Do not switch the device on and off in short intervals, as this will reduce the device's life.
- Do not touch the device's housing bare-handed during its operation (housing becomes very hot). Allow the fixture to cool for at least 5 minutes before handling.
- Do not shake the device. Avoid brute force when installing or operating the device.
- Only operate the fixture after having checked if the housing is firmly closed and all screws are tightly fastened.
- Only operate the device after having familiarized with its functions.
- Avoid flames and do not put close to acids, flammable liquids or gases.
- Always keep the case closed while operating.
- Always allow a free air space of at least 50 cm around the unit for ventilation.
- Always disconnect power from the mains, when device is not used or before cleaning! Only handle the power cord holding it by the plug. Never pull out the plug by tugging the power cord.
- Make sure that the device is not exposed to extreme heat, moisture or dust.
- Make sure that the available voltage is not higher than stated on the rear panel.
- Make sure that the power cord is never crimped or damaged. Check the device and the power cord from time to time.
- If the lens is obviously damaged, it has to be replaced.
- If device was dropped or struck, disconnect mains power supply immediately. Have a qualified engineer inspect for safety before operating.
- If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.
- If your Showtec device fails to work properly, discontinue the use immediately. Pack the unit securely (preferably in the original packing material), and return it to your Showtec dealer for service.
- For adult use only. The fixture must be installed beyond the reach of children. Never leave the unit running unattended.
- The user is responsible for correct positioning and operating of the Spectral. The manufacturer will not accept liability for damages caused by the misuse or incorrect installation of this device.
- This device falls under protection class I. Therefore it is essential to connect the yellow/green conductor to earth.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- **WARRANTY:** Till one year after date of purchase.



Operating Determinations

- This device is not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.
- The minimum distance between light output and the illuminated surface must be bigger than 1 meter.
- The maximum ambient temperature $t_a = 40^\circ\text{C}$ must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40°C .
- If this device is operated in any other way than the one described in this manual, the product may suffer damages and the warranty becomes void.
- Any other operation may lead to dangers like short-circuit, burns, electric shock, crash, etc.

You endanger your own safety and the safety of others!

Rigging

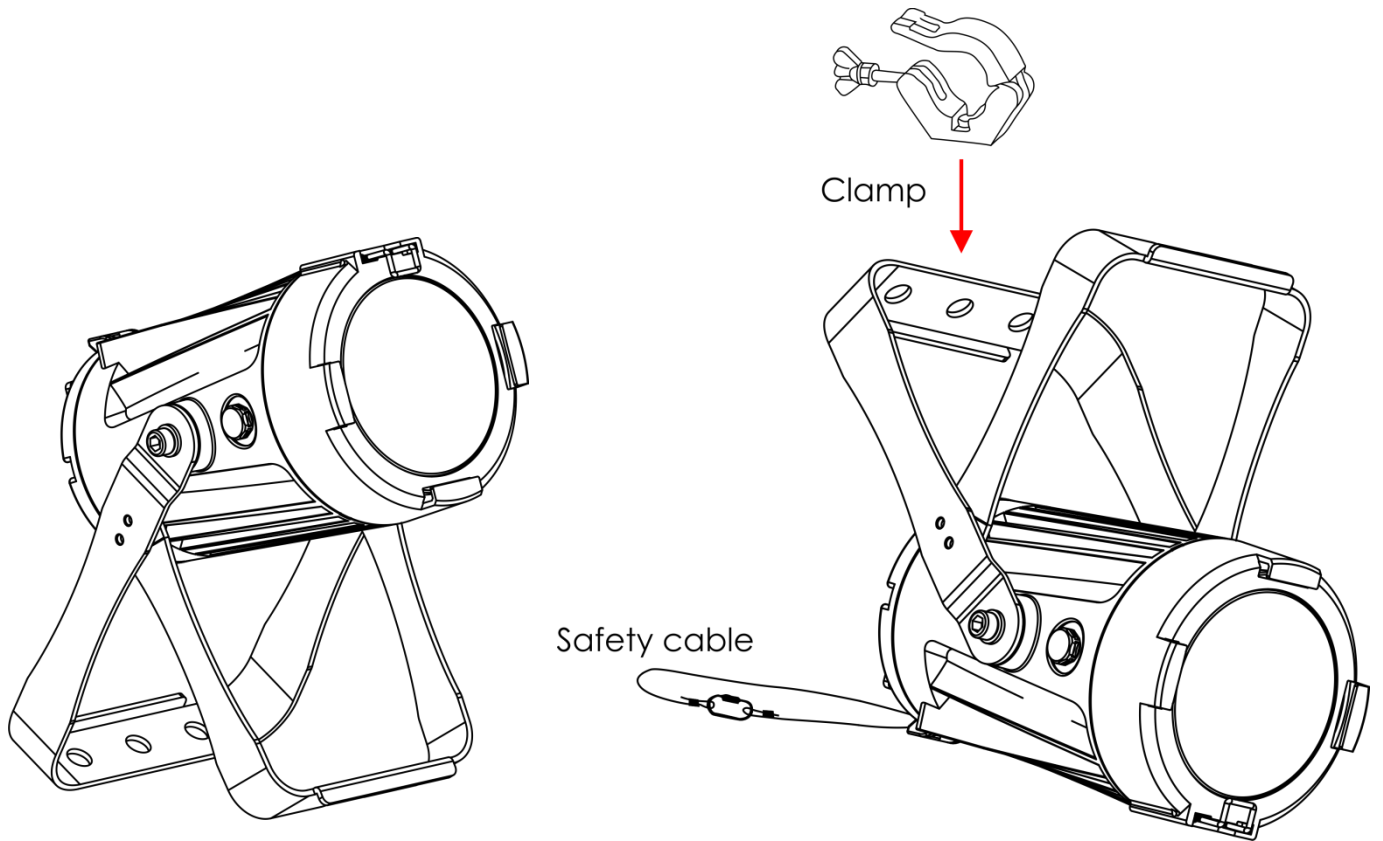
Please follow the European and national guidelines concerning rigging, trussing and all other safety issues.

Do not attempt the installation yourself !

Always let the installation be carried out by an authorized dealer !

Procedure:

- If the Spectral is lowered from the ceiling or high joists, professional trussing systems have to be used.
- Use a clamp to mount the Spectral, with the mounting bracket, to the trussing system.
- The Spectral must never be fixed swinging freely in the room.
- The installation must always be secured with a safety attachment, e.g. an appropriate safety net or safety cable.
- When rigging, derigging or servicing the Spectral, always make sure, that the area below the installation site is secured and that there are not any unauthorized people around.



The Spectral can be placed on a flat stage floor or mounted to any kind of truss with a clamp.

Improper installation can cause serious injuries and/or damage of property!

Connection with the mains

Connect the device to the mains with the power-plug.
Always check if the right color cable is connected to the right place.

International	EU Cable	UK Cable	US Cable	Pin
L	BROWN	RED	YELLOW/COPPER	PHASE
N	BLUE	BLACK	SILVER	NEUTRAL
⊕	YELLOW/GREEN	GREEN	GREEN	PROTECTIVE GROUND

Make sure that the device is always properly connected to the earth!

Improper installation can cause serious injuries and/or damage of property!



Return Procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail offersales@highlite.nl and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

- 01) Your name
- 02) Your address
- 03) Your phone number
- 04) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any shortcomings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to report and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless agreed otherwise in writing.

Complaints against us must be prepared in writing or sent by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement from which the obligation is resulting.

Description of the device

Features

The Spectral PC 400Z IP is a LED fixture with high output and great effects.

- Input voltage: 100-240V AC, 50/60Hz
- Power consumption: 45W
- Light source: 1 x Osram RGBW LED
- Lux @ 2m: 4160 (18°)
- Lux @ 1m: 56000 (3,5°)
- Control protocol: DMX-512
- DMX personalities: 9, 9, 12, 17 channels
- LCD display
- Dimmer: 0-100%
- Strobe: 0-25Hz
- Beam Angle: 3,5°-18°
- Control: Static Colors, Auto, Master/Slave, DMX-512
- Housing: Die-cast aluminum
- Connections: IP rated power connector IN/OUT, IP rated 5-pin XLR IN/OUT
- Cooling: Convection
- IP Rating: IP65
- Dimensions: 230 x 135 x 330 mm (LxWxH)
- Weight: 3,5 kg

Frontside

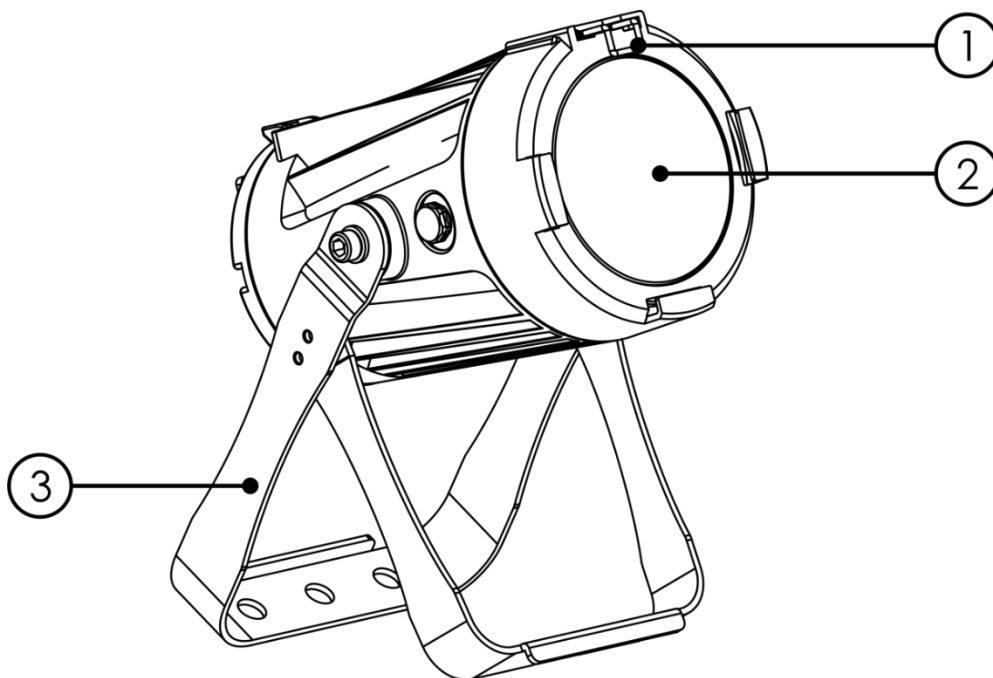


Fig. 01

- 01) Color frame retaining clip
- 02) Osram RGBW LED
- 03) Mounting bracket with inclination screw

Backside

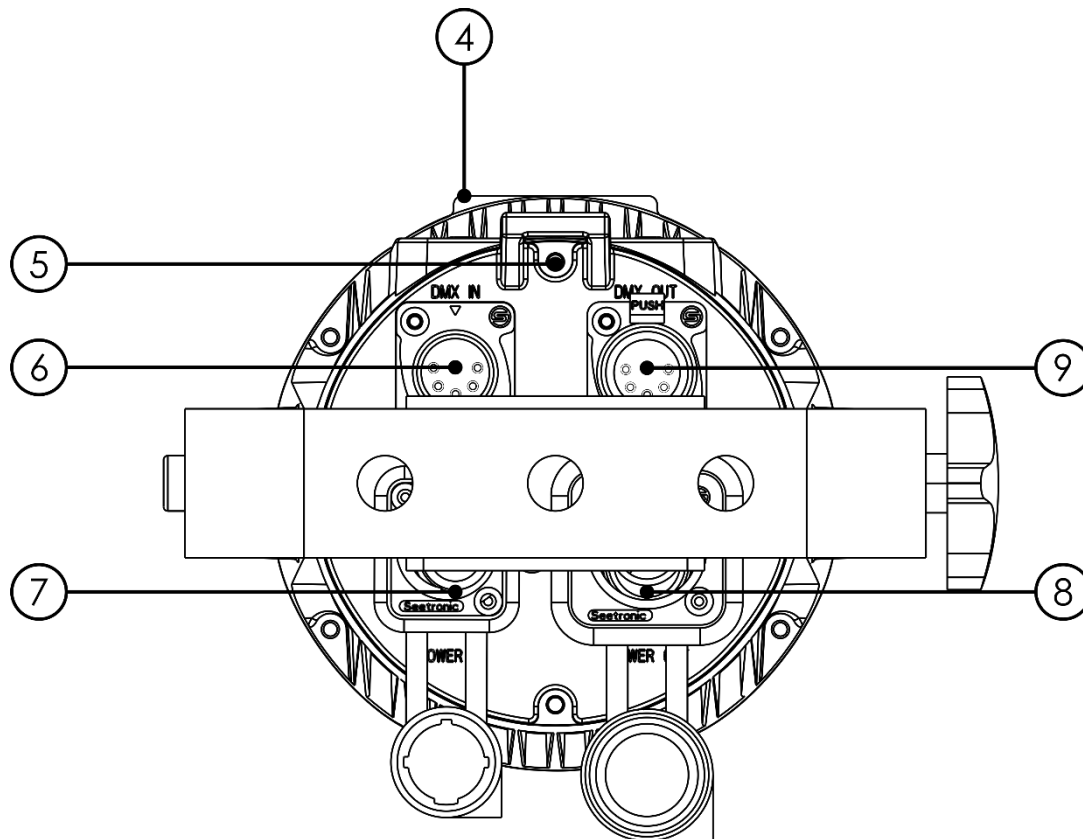


Fig. 02

- 04) LCD display + control buttons
- 05) Safety eye
- 06) IP rated 5-pin DMX signal connector IN
- 07) IP rated power connector 100-240V IN
- 08) IP rated power connector 100-240V OUT
- 09) IP rated 5-pin DMX signal connector OUT

Installation

Remove all packing materials from the Spectral PC 400Z IP. Check if all foam and plastic padding is removed. Connect all cables.

Do not supply power before the whole system is set up and connected properly.

Always disconnect from electric mains power supply before cleaning or servicing.

Damages caused by non-observance are not subject to warranty.

Set Up and Operation

Follow the directions below, as they pertain to your preferred operation mode.

Before plugging the unit in, always make sure that the power supply matches the product specification voltage. Do not attempt to operate a 120V specification product on 230V power, or vice versa.

Connect the device to the main power supply.

Control Modes

There are 4 modes:

- Static Colors (Manual)
- Built-in programs (Auto)
- Master/Slave
- DMX-512 (9CH, 9CH, 12CH, 17CH)

One Spectral (Static Colors)

- 01) Fasten the effect light to a firm trussing. Leave at least 0,5 meter on all sides for air circulation.
- 02) Always use a safety cable (ordercode 70140 / 70141).
- 03) Plug the end of the electric mains power cord into a proper electric power supply socket.
- 04) When the Spectral is not connected with a DMX cable, it functions as a stand-alone device. Please see page 15 for more information about the static colors.

One Spectral (Built-in programs)

- 01) Fasten the effect light to a firm trussing. Leave at least 0,5 meter on all sides for air circulation.
- 02) Always use a safety cable (ordercode 70140 / 70141).
- 03) Plug the end of the electric mains power cord into a proper electric power supply socket.
- 04) When the Spectral is not connected with a DMX cable, it functions as a stand-alone device. Please see page 16 for more information about the built-in programs.

Multiple Spectrals (Master/Slave control)

- 01) Fasten the effect light onto firm trussing. Leave at least 0,5 meter on all sides for air circulation.
- 02) Always use a safety cable (ordercode 70140 / 70141).
- 03) Use a 5-pin XLR cable to connect the Spectral.

The pins:



- 01) Earth
- 02) Signal -
- 03) Signal +

- 04) Link the units as shown in fig. 03. Connect the first unit's DMX "out" socket with the second unit's "in" socket, using a DMX cable. Link the second, third and fourth units.
- 05) You can use the same functions on the master device as described on pages 15-16 (Static colors and Built-in programs). This means that you can set your desired operation mode on the master device and all slave devices will react the same as the master device.

Multiple Spectrals (Master/Slave control)

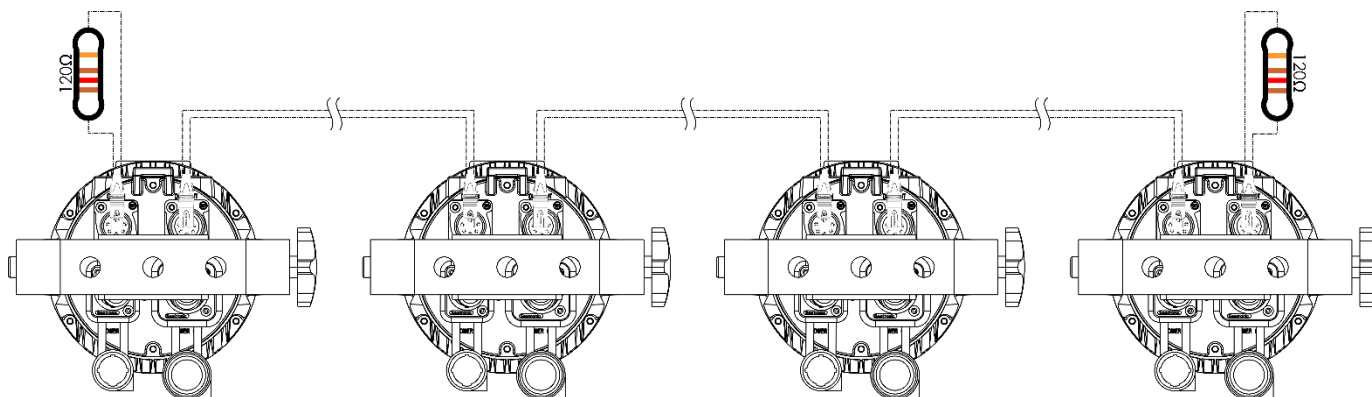
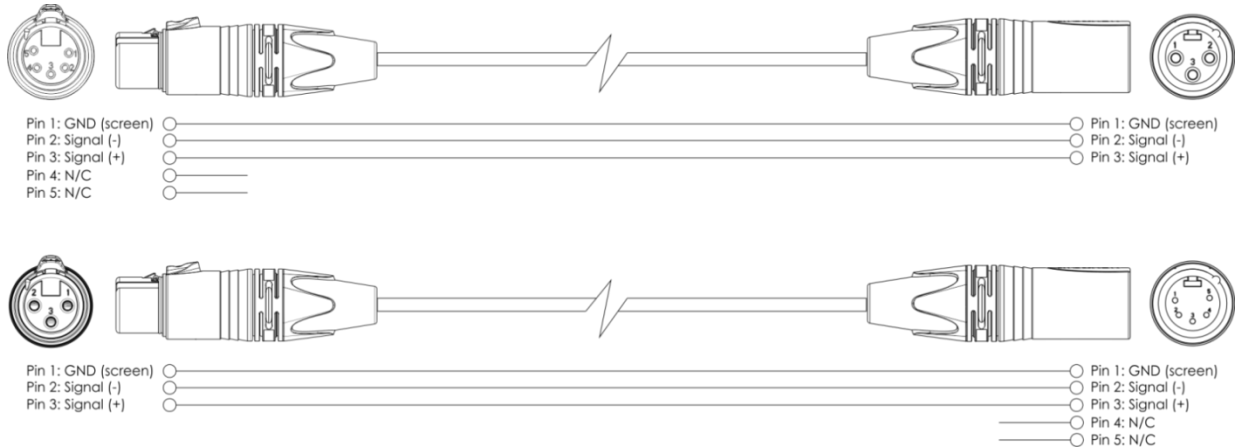


Fig. 03

Multiple Spectrals (DMX Control)

- 01) Fasten the effect light to a firm trussing. Leave at least 0,5 meter on all sides for air circulation.
- 02) Always use a safety cable (ordercode 70140 / 70141).
- 03) Use a 5-pin XLR cable to connect the Spectrals and other devices.



- 04) Link the units as shown in fig. 04. Connect a light controller to the first unit's DMX "in" socket, using a DMX cable. Connect the first unit's "out" socket with the second unit's "in" socket, using a DMX cable. Link the second, third and fourth units.
- 05) Supply electric power: Plug electric mains power cords into each unit's special IP rated power IN socket, then plug the other end of the mains power cord into proper electric power supply sockets, starting with the first unit. Do not supply power before the whole system is set up and connected properly.

Multiple Spectrals DMX Set Up

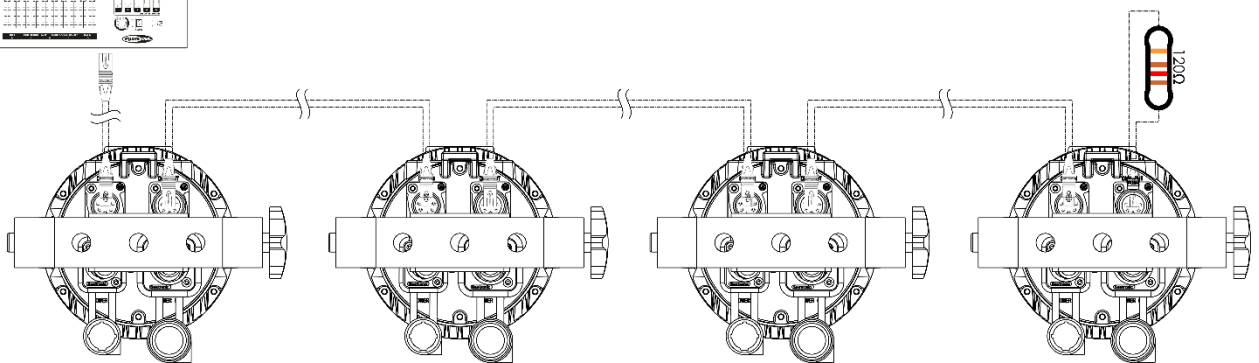
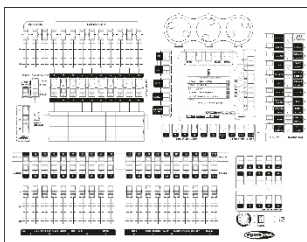



Fig. 04

Note : Link all cables before connecting electric power

Fixture Linking

You will need a serial data link to run light shows of one or more fixtures using a DMX-512 controller or to run synchronized shows of two or more fixtures set to a master/slave operating mode. The combined number of channels required by all the fixtures on a serial data link determines the number of fixtures the data link can support.

- Important:** Fixtures on a serial data link must be daisy-chained in a single line. To comply with the EIA-485 standard, no more than 30 devices should be connected on one data link. Connecting more than 30 fixtures on one serial data link without the use of a DMX optically isolated splitter may result in deterioration of the digital DMX signal.
- 
- Maximum recommended DMX data link distance: 100 meters
 - Maximum recommended number of fixtures on a DMX data link: 30 fixtures
 - Maximum recommended number of fixtures on a power link: @110V: 20 fixtures
 - Maximum recommended number of fixtures on a power link: @240V: 40 fixtures

Data Cabling

To link fixtures together, you must obtain data cables. You can purchase DAP Audio certified DMX cables directly from a dealer/distributor or construct your own cable. If you choose to create your own cable, please use data-grade cables that can carry a high quality signal and are less prone to electromagnetic interference.

DAP Audio DMX Data Cables

- DAP Audio Basic microphone cable for allround use. bal. XLR/M 3-pin > XLR/F 3-pin. **Ordercode** FL01150 (1,5 m), FL013 (3 m), FL016 (6 m), FL0110 (10 m), FL0115 (15 m), FL0120 (20 m).
- DAP Audio X-type data cable XLR/M 3-pin > XLR/F 3-pin. **Ordercode** FLX0175 (0,75 m), FLX01150 (1,5 m), FLX013 (3 m), FLX016 (6 m), FLX0110 (10 m).
- DAP Audio cable for the demanding user with exceptional audio-qualities and connector made by Neutrik®. **Ordercode** FL71150 (1,5 m), FL713 (3 m), FL716 (6 m), FL7110 (10 m).
- DAP Audio cable for the demanding user with exceptional audio-qualities and connector made by Neutrik®. **Ordercode** FL7275 (0,75 m), FL72150 (1,5 m), FL723 (3 m), FL726 (6 m), FL7210 (10 m).
- DAP Audio 110 Ohm cable with digital signal transmission. **Ordercode** FL0975 (0,75 m), FL09150 (1,5 m), FL093 (3 m), FL096 (6 m), FL0910 (10 m), FL0915 (15 m), FL0920 (20 m).

Note: connect the Spectrals with the dedicated special XLR cables for outdoor use.

- [FL83150](#) 1,5 m IP65 XLR/M 5p. > XLR/F 5p. Neutrik
- [FL833](#) 3,0 m IP65 XLR/M 5p. > XLR/F 5p. Neutrik
- [FL836](#) 6,0 m IP65 XLR/M 5p. > XLR/F 5p. Neutrik
- [FL8310](#) 10,0 m IP65 XLR/M 5p. > XLR/F 5p. Neutrik
- [FL8320](#) 20 m IP65 XLR/M 5p. > XLR/F 5p. Neutrik

The Spectral PC 400Z IP can be operated with a controller in **control mode** or without the controller in **stand-alone mode**.

Control Panel

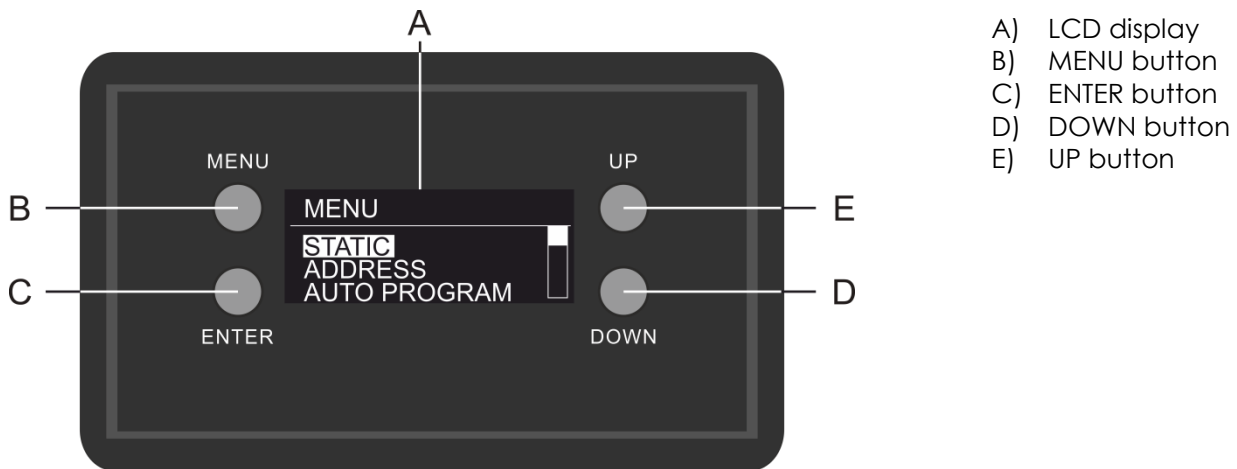


Fig. 05

Control Mode

The fixtures are individually addressed on a data-link and connected to the controller. The fixtures respond to the DMX signal from the controller. (When you select the DMX address and save it, the controller will display the saved DMX address, next time.)

DMX Addressing

The control panel on the front side of the base allows you to assign DMX fixture addresses, which is the first channel with which the Spectral will respond to the controller.

Please note, when you use the controller, the unit has **17** channels.

When using multiple Spectrals, make sure you set the DMX addresses right.

Therefore, the DMX address of the first Spectral should be **1(001)**; the DMX address of the second Spectral should be **1+17=18 (018)**; the DMX address of the third Spectral should be **18+17=35 (035)**, etc.

Please, be sure that you do not have any overlapping channels in order to control each Spectral correctly. If two or more Spectrals are addressed similarly, they will work similarly.

Controlling:

After having addressed all Spectral fixtures, you may now start operating these via your lighting controller.

Note: After switching on, the Spectral will automatically detect whether DMX 512 data is received or not. If there is no data received at the DMX-input, the "LED " on the control panel will not flash.

If not, the problem may be:

- The XLR cable from the controller is not connected with the input of the Spectral.
- The controller is switched off or defective, the cable or connector is defective, or the signal wires are swapped in the input connector.

Note: It is necessary to insert an XLR termination plug (with 120 Ohm) in the last fixture in order to ensure proper transmission on the DMX data link.

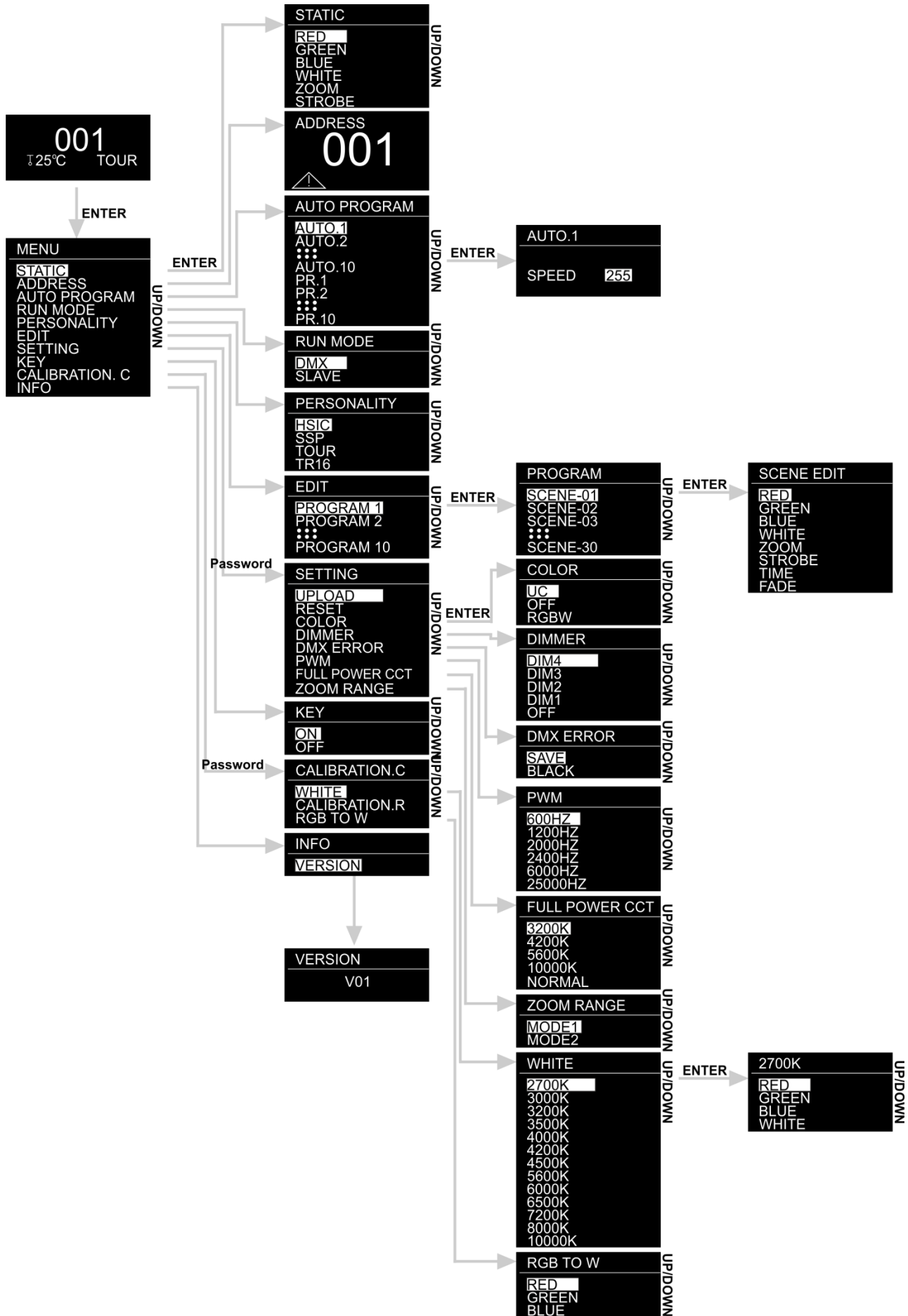
⚠ Display Off after 10 seconds ⚠

When no button is pressed for 10 seconds, the display will turn off.

To light up the display, you have to press one of the buttons: MENU, ENTER, UP or DOWN

Once you have pressed the buttons, the display will light up.

Menu Overview

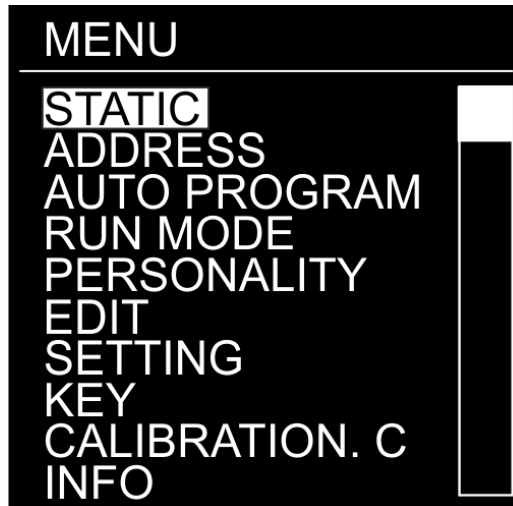


Main Menu Options

01) Upon start-up, the display will show:



02) Press the **ENTER** button to open the main menu. The display will show:



03) Press the **UP/DOWN** buttons to toggle between the menus.

04) Press the **ENTER** button to open the desired menu.

05) Press the **MENU** button to return to the previous screen.

1. Static Colors

With this menu, you can set the static colors.

01) While in the main menu, press the **UP/DOWN** buttons to choose **STATIC**.

02) Press the **ENTER** button to open the menu.

03) Press the **UP/DOWN** buttons to toggle between the static colors (RED, GREEN, BLUE, WHITE), ZOOM and STROBE.

04) Once you have chosen the desired color, press the **ENTER** button to enter edition menu.

05) Press the **UP/DOWN** buttons to adjust the color intensity. The adjustment range is between 0-255, from dark to brightest.

06) Press the **ENTER** button to proceed to ZOOM. Press the **UP/DOWN** buttons to set the zoom effect. The adjustment range is between 0-255, from small to big.

07) Press the **ENTER** button to proceed to STROBE. Press the **UP/DOWN** buttons to increase/decrease the strobe frequency. The adjustment range is between 0-25, from OFF to high strobe frequency.

08) You can combine RED, GREEN, BLUE and WHITE to create an infinite range of colors (0-255).

2. DMX Address

With this menu you can set the device's DMX starting address.

- 01) While in the main menu, press the **UP/DOWN** buttons to choose ADDRESS.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to set the desired DMX address. The adjustment range is between 001-512.
- 04) Press the **ENTER** button to save changes.

3. Built-in programs

With this menu, you can set the built-in programs.



- 01) While in the main menu, press the **UP/DOWN** buttons to choose AUTO.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose one of the 10 uneditable built-in programs (AUTO.1-AUTO.10) and 10 presets (PR.1-PR.10) which can be edited in Edit mode (see page 17).
- 04) Press the **ENTER** button to select the desired built-in program.
- 05) If you have chosen one of the programs (AUTO.1-AUTO.10), press the **ENTER** button to proceed to the program speed settings.
- 06) Press the **UP/DOWN** buttons to set the program speed. The adjustment range is between 0-255, from slow to fast.
- 07) The device will now run the desired built-in program.

4. Master/Slave Mode

With this menu, you can set the device as a slave.



- 01) While in the main menu, press the **UP/DOWN** buttons to choose RUN MODE.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between the 2 options: DMX and SLAVE.
- 04) If you have chosen DMX, the display is operating in DMX/Master Mode.
- 05) If you have chosen SLAVE, the device is operating in Slave Mode. It means that it will react the same as the master device.

5. Personality (DMX channel modes)

With this menu, you can set the desired DMX channel mode (personality).

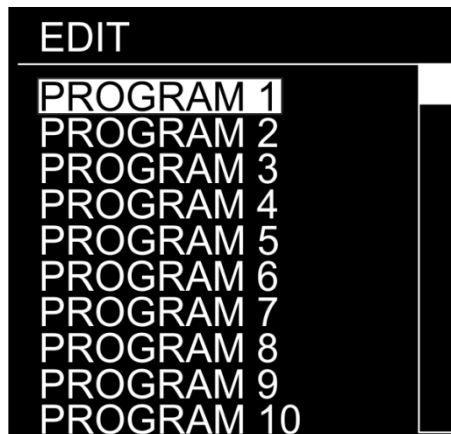


- 01) While in the main menu, press the **UP/DOWN** buttons to choose PERSONALITY.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between the following DMX channel modes:

HSIC:	9 channels	SSP:	9 channels
TOUR:	12 channels	TR16:	17 channels

6. Edit Mode

With this menu, you can create your own custom shows.



- 01) While in the main menu, press the **UP/DOWN** buttons to choose EDIT.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose the desired custom program (PROGRAM1 – PROGRAM 10).
- 04) Each custom program has 30 scenes, which can be edited. Press the **UP/DOWN** buttons to select the desired scene.
- 05) Press the **ENTER** button to enter the scene settings.
- 06) Press the **UP/DOWN** buttons to toggle between RED, GREEN, BLUE, WHITE, ZOOM, STROBE, TIME and FADE options.
- 07) If you have chosen RED, GREEN, BLUE or WHITE, press the ENTER button to open the menu.
- 08) Press the **UP/DOWN** buttons to increase/decrease the LED intensity. The adjustment range is between 0-255, from OFF to FULL ON.
- 09) If you have chosen ZOOM, press the **ENTER** button to open the menu.
- 10) Press the **UP/DOWN** buttons to set the zoom effect. The adjustment range is between 0-255, from small to big.
- 11) If you have chosen STROBE, press the **ENTER** button to open the menu.
- 12) Press the **UP/DOWN** buttons to set the strobe frequency. The adjustment range is between 0-25, from OFF to high frequency.
- 13) If you have chosen TIME, press the **ENTER** button to open the menu.
- 14) Press the **UP/DOWN** buttons to set the duration of a scene. The adjustment range is between 0-255, from 0 to 255 seconds.
- 15) If you have chosen FADE, press the **ENTER** button to open the menu.
- 16) Press the **UP/DOWN** buttons to set the fade time between particular scenes. The adjustment range is between 0-255, from 0 to 255 seconds.

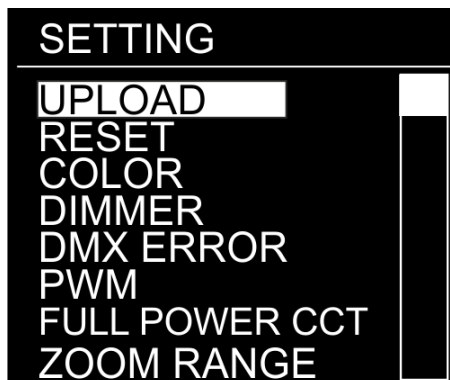
6.1. How to make your own custom program

- 01) First, start with PR.1 and add the desired settings in SCENE-01, then SCENE-02, etc.
- 02) In this way you can add a maximum of 30 scenes.
- 03) After that, you can start with PR.2 and create a maximum of 30 scenes again.
- 04) You can repeat these steps, until you've reached PR.10, SCENE-30.
- 05) It is possible to create 300 separate scenes.

7. Settings

With this menu you can set the device's settings.

- 01) While in the main menu, press the **UP/DOWN** buttons to choose SETTING.
- 02) Press the **ENTER** button to open the menu.
- 03) Insert the **password** in order to access the menu. Press the buttons in the following order: **UP,DOWN,UP,DOWN** and press the **ENTER** button to confirm.
- 04) Press the **UP/DOWN** buttons to toggle between the following menus: Upload, Reset, Color, Dimmer, DMX Error, PWM, Full Power CCT and Zoom range.



7.1. Upload

With this menu, you can export current programs from the master device to the connected slave devices.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose UPLOAD.
- 02) Press the **ENTER** button to open the menu.
- 03) Insert the password in order to access the menu. Press the buttons in the following order: **UP,DOWN,UP,DOWN** and press the **ENTER** button to confirm.
- 04) The device will light up yellow. When the process is finished, the display will show OK.
- 05) If there are any **problems with exporting**, the master and the slave devices will light up **red**.
- 06) If the operation was **completed successfully**, the master and the slave devices will light up **green**.

7.2. Reset

With this menu, you can reset the custom programs.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose RESET.
- 02) Press the **ENTER** button to open the menu.
- 03) Insert the password in order to access the menu. Press the buttons in the following order: **UP,DOWN,UP,DOWN** and press the **ENTER** button to confirm.
- 04) When the process is finished, the display will show OK. The custom programs will have been reset.

7.3. Color

With this menu, you can adjust the color calibration functions.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose COLOR.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between the 3 options: RGBW, OFF, UC
- 04) If you have chosen UC, the RGB output is adjusted to a standard preset universal color. In this way, different Spectral versions are color-balanced in order to match each other.
- 05) If you have chosen OFF, the RGB values are not adjusted and the output is the most powerful.
- 06) If you have chosen RGBW, then RGB to WHITE is active. This means RGB = 255, 255, 255. The displayed color is the one which you set in CALIBRATION. C > RGBW menu (9. Calibration, page 20).

7.4. Dimmer

With this menu, you can adjust the dimmer.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose DIMMER.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose one of the 4 dimmer speed options (DIM1-DIM4, from fast to slow) and OFF.
- 04) If you choose OFF, then RGBW and the master dimmer will be linear.

7.5. DMX Error

With this menu, you can determine the device's behaviour in case of a DMX signal error.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose DMX ERROR.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between the 2 options: BLACK and SAVE.
- 04) If you have chosen SAVE, the Spectral will fall back on the last working DMX signal, which will ensure uninterrupted performance.
- 05) If you have chosen BLACK, the Spectral will black the output out, in case of a DMX signal error.

7.6. PWM rate

With this menu you can set the PWM rate.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose PWM.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose the desired PWM frequency. The available options are: 600 Hz, 1200 Hz, 2000 Hz, 2400 Hz, 6000 Hz, 25000 Hz.
- 04) The higher the PWM frequency, the lower the dimmer's grayscale.

7.7. Color temperature

With this menu you can set the color temperature.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose FULL POWER CCT.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to choose the desired color temperature. The available options are: 3200K, 4200K, 5600K, 10000K and NORMAL.

7.8. Zoom Range

With this menu, you can set the zoom mode.

- 01) While in SETTING menu, press the **UP/DOWN** buttons to choose ZOOM RANGE.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between the 2 options: MODE1 and MODE2.

8. Safety lock

With this menu you can select whether the safety lock is active.

- 01) While in the main menu, press the **UP/DOWN** buttons to choose KEY.
- 02) Press the **ENTER** button to open the menu.
- 03) Press the **UP/DOWN** buttons to toggle between ON and OFF.
- 04) If you have chosen ON and when the display turns off after remaining idle for 20 seconds, you will need to insert the password in order to access the main menu (press the buttons in the following order: **UP,DOWN,UP,DOWN**).
- 05) If you have chosen OFF, the main menu will remain unlocked.

9. Calibration

With this menu, you can calibrate the device's colors.

- 01) While in the main menu, press the **UP/DOWN** buttons to choose CALIBRATION. C.
- 02) Press the **ENTER** button to open the menu.
- 03) Insert the **password** in order to access the menu. Press the buttons in the following order: **UP,DOWN,UP,DOWN** and press the **ENTER** button to confirm.



- 04) Press the **UP/DOWN** buttons to toggle between WHITE (white color calibration), CALIBRATION.R (reset default settings white colors) and RGB TO W (RGBW calibration).

9.1. White color calibration

With this menu you can adjust the temperature of the built-in white color presets.

- 01) If you have chosen WHITE, press the **ENTER** button to open the menu.
- 02) Press the **UP/DOWN** buttons to choose one of the 13 white color presets: 2700K–10000K.
- 03) Once you have chosen the desired preset, press the **ENTER** button to open the submenu.
- 04) Press the **ENTER** button to toggle between RED, GREEN, BLUE and WHITE.
- 05) Press the **UP/DOWN** buttons to increase/decrease the intensity of the chosen color. The adjustment range of each color is between 0-255, from OFF to FULL ON.

**9.2. Reset white color calibration**

With this menu you can reset the white colors to default settings.

- 01) If you have chosen CALIBRATION.R, press the **ENTER** button to open the menu.
- 02) Insert the **password** in order to access the menu. Press the buttons in the following order: **UP,DOWN,UP,DOWN** and press the **ENTER** button to confirm.
- 03) When the process is finished, the display will show OK. The white colors will be set to default settings.

9.3. RGBW calibration

With this menu you can adjust the temperature of the white color by means of RGB colors.

- 01) If you have chosen RGB TO W, press the **ENTER** button to open the menu.
- 02) Press the **ENTER** button to toggle between the RED, GREEN and BLUE.
- 03) Once you have chosen the desired color, press the **ENTER** button to edit.
- 04) Press the **UP/DOWN** buttons to set the color intensity. The adjustment range is between 0-255, OFF to FULL ON.

10. Software information

With this menu you can view the currently installed software version.

- 01) While in the main menu, press the **UP/DOWN** buttons to choose INFO.
- 02) Press the **ENTER** button to open the menu.
- 03) You can now view the currently installed software version.



DMX Channels

9 channels (HSIC)

Channel 1 – Dimmer intensity

0-255 Gradual adjustment, from dark to brightest 0-100%

Channel 2 – Hue (CH1 must be set between 1-255)

0-255 Gradual adjustment Hue, from 0-100%

Channel 3 – Hue Fine (CH1 must be set between 1-255)

0-255 Gradual adjustment Hue Fine, from 0-100%

Channel 4 – Red color saturation (CH1 must be set between 1-255)

0-255 Saturation adjustment, from 0-100%

Channel 5 – Color Macros (CH1 must be set between 1-255)

0-10	No function
11-30	White 1: 2700K
31-50	White 2: 3000K
51-70	White 3: 3200K
71-90	White 4: 3500K
91-110	White 5: 4000K
111-130	White 6: 4200K
131-150	White 7: 4500K
151-170	White 8: 5600K
171-190	White 9: 6000K
191-210	White 10: 6500K
211-230	White 11: 7200K
231-255	White 12: 8000K

Channel 6 – Strobe

(CH1 and CH2, CH3 or CH4 must be set between 1-255 and CH5 between 11-255 )

0-9	No function
10-99	Strobe flash frequency, from slow to fast (0-25Hz)
100-109	No function
110-179	Pulse strobe, from slow to fast
180-189	No function
190-255	Random strobe, from slow to fast

Channel 7 – Zoom

0-255 Zoom adjustment, from small to big

Channel 8 – Zoom functions

0-200	No function
201-220	Zoom reset
221-255	No function

Channel 9 – Dimmer speed

0-9	Preset dimmer speed from the device's menu
10-29	Linear dimmer
30-69	Non-linear dimmer 1 (fastest)
70-129	Non-linear dimmer 2
130-189	Non-linear dimmer 3
190-255	Non-linear dimmer 4 (slowest)

9 channels (SSP)**Channel 1 – Dimmer intensity**

0-255 Gradual adjustment, from dark to brightest 0-100%

Channel 2 – Red (CH1 must be set between 1-255 )

0-255 Gradual adjustment Red, from 0-100%

Channel 3 – Green (CH1 must be set between 1-255 )

0-255 Gradual adjustment Green, from 0-100%

Channel 4 – Blue (CH1 must be set between 1-255 )

0-255 Gradual adjustment Blue, from 0-100%

Channel 5 – White (CH1 must be set between 1-255 )

0-255 Gradual adjustment White, from 0-100%

Channel 6 – Strobe (CH1 and CH2, CH3, CH4 or CH5 must be set between 1-255 )

0-9 No function

10-99 Strobe flash frequency, from slow to fast (0-25Hz)

100-109 No function

110-179 Pulse strobe, from slow to fast

180-189 No function

190-255 Random strobe, from slow to fast

Channel 7 – Zoom

0-255 Zoom adjustment, from small to big

Channel 8 – Zoom functions

0-200 No function

201-220 Zoom reset

221-255 No function

Channel 9 – Dimmer speed

0-9 Preset dimmer speed from the device's menu

10-29 Linear dimmer

30-69 Non-linear dimmer 1 (fastest)

70-129 Non-linear dimmer 2

130-189 Non-linear dimmer 3

190-255 Non-linear dimmer 4 (slowest)

12 channels (TOUR)**Channel 1 – Dimmer intensity**

0-255 Gradual adjustment, from dark to brightest 0-100%

Channel 2 – Red (CH1 must be set between 1-255 )

0-255 Gradual adjustment Red, from 0-100%

Channel 3 – Green (CH1 must be set between 1-255 )

0-255 Gradual adjustment Green, from 0-100%

Channel 4 – Blue (CH1 must be set between 1-255 )

0-255 Gradual adjustment Blue, from 0-100%

Channel 5 – White (CH1 must be set between 1-255 )

0-255 Gradual adjustment White, from 0-100%

Channel 6 – Macros (CH1 must be set between 1-255 )

0-10	No function
11-30	Red 100% / Green Up / Blue 0%
31-50	Red Down / Green 100% / Blue 0%
51-70	Red 0% / Green 100% / Blue Up
71-90	Red 0% / Green Down / Blue 100%
91-110	Red Up / Green 0% / Blue 100%
111-130	Red 100% / Green 0% / Blue Down
131-150	Red 100% / Green Up / Blue Up
151-170	Red Down / Green Down / Blue 100%
171-195	Red 100% / Green 100% / Blue 100% / White 100%
196-200	White 1: 2700K
201-205	White 2: 3000K
206-210	White 3: 3200K
211-215	White 4: 3500K
216-220	White 5: 4000K
221-225	White 6: 4200K
226-230	White 7: 4500K
231-235	White 8: 5600K
236-240	White 9: 6000K
241-245	White 10: 6500K
246-250	White 11: 7200K
251-255	White 12: 8000K

Channel 7 – Strobe**(CH1 and CH2, CH3, CH4 or CH5 must be set between 1-255 and CH6 between 11-255 )**

0-9	No function
10-99	Strobe flash frequency, from slow to fast (0-25Hz)
100-109	No function
110-179	Pulse strobe, from slow to fast
180-189	No function
190-255	Random strobe, from slow to fast

Channel 8 – Built-in programs/Custom programs

0-40	No function
41-50	Auto 1
51-60	Auto 2
61-70	Auto 3
71-80	Auto 4
81-90	Auto 5
91-100	Auto 6
101-110	Auto 7
111-120	Auto 8
121-130	Auto 9
131-140	Auto 10
141-150	Program 1
151-160	Program 2
161-170	Program 3
171-180	Program 4
181-190	Program 5
191-200	Program 6
201-210	Program 7
211-220	Program 8
221-230	Program 9
231-255	Program 10

Channel 9 – Auto speed (CH8 must be set between 41-140 )

0-255	Speed adjustment, from slow to fast
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Channel 10 – Zoom

0-255	Zoom adjustment, from small to big
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Channel 11 – Zoom functions

0-200	No function
201-220	Zoom reset
221-255	No function

Channel 12 – Dimmer speed

0-9	Preset dimmer speed from the device's menu
10-29	Linear dimmer
30-69	Non-linear dimmer 1 (fastest)
70-129	Non-linear dimmer 2
130-189	Non-linear dimmer 3
190-255	Non-linear dimmer 4 (slowest)

17 channels (TR16)

Channel 1 – Dimmer intensity

0-255 Gradual adjustment, from dark to brightest 0-100%

Channel 2 – Fine dimmer

0-255 Fine dimmer adjustment, from dark to brightest 0-100%

Channel 3 – Red (CH1 must be set between 1-255 )

0-255 Gradual adjustment Red, from 0-100%

Channel 4 – Fine Red (CH2 must be set between 1-255 )

0-255 Fine adjustment Red, from 0-100%

Channel 5 – Green (CH1 must be set between 1-255 )

0-255 Gradual adjustment Green, from 0-100%

Channel 6 – Fine Green (CH2 must be set between 1-255 )

0-255 Fine adjustment Green, from 0-100%

Channel 7 – Blue (CH1 must be set between 1-255 )

0-255 Gradual adjustment Blue, from 0-100%

Channel 8 – Fine Blue (CH2 must be set between 1-255 )

0-255 Fine adjustment Blue, from 0-100%

Channel 9 – White (CH1 must be set between 1-255 )

0-255 Gradual adjustment White, from 0-100%


Channel 10 – Fine White (CH2 must be set between 1-255 )

0-255 Fine adjustment White, from 0-100%

Channel 11 – Macros (CH1 must be set between 1-255 )

0-10	No function
11-30	Red 100% / Green Up / Blue 0%
31-50	Red Down / Green 100% / Blue 0%
51-70	Red 0% / Green 100% / Blue Up
71-90	Red 0% / Green Down / Blue 100%
91-110	Red Up / Green 0% / Blue 100%
111-130	Red 100% / Green 0% / Blue Down
131-150	Red 100% / Green Up / Blue Up
151-170	Red Down / Green Down / Blue 100%
171-195	Red 100% / Green 100% / Blue 100% / White 100%
196-200	White 1: 2700K
201-205	White 2: 3000K
206-210	White 3: 3200K
211-215	White 4: 3500K
216-220	White 5: 4000K
221-225	White 6: 4200K
226-230	White 7: 4500K
231-235	White 8: 5600K
236-240	White 9: 6000K
241-245	White 10: 6500K


246-250	White 11: 7200K
251-255	White 12: 8000K

Channel 12 – Strobe (CH1 and CH3, CH4, CH5, CH6, CH7, CH8, CH9 or CH10 must be set between 1-255 and CH11 between 11-255 )

0-9	No function
10-99	Strobe flash frequency, from slow to fast (0-25Hz)
100-109	No function
110-179	Pulse strobe, from slow to fast
180-189	No function
190-255	Random strobe, from slow to fast

Channel 13 – Built-in programs/Custom programs

0-40	No function
41-50	Auto 1
51-60	Auto 2
61-70	Auto 3
71-80	Auto 4
81-90	Auto 5
91-100	Auto 6
101-110	Auto 7
111-120	Auto 8
121-130	Auto 9
131-140	Auto 10
141-150	Program 1
151-160	Program 2
161-170	Program 3
171-180	Program 4
181-190	Program 5
191-200	Program 6
201-210	Program 7
211-220	Program 8
221-230	Program 9
231-255	Program 10

Channel 14 – Auto speed (CH13 must be set between 41-140 )

0-255	Speed adjustment, from slow to fast
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Channel 15 – Zoom

0-255	Zoom adjustment, from small to big
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Channel 16 – Zoom functions

0-200	No function
201-220	Zoom reset
221-255	No function

Channel 17 – Dimmer speed

0-9	Preset dimmer speed from the device's menu
10-29	Linear dimmer
30-69	Non-linear dimmer 1 (fastest)
70-129	Non-linear dimmer 2
130-189	Non-linear dimmer 3
190-255	Non-linear dimmer 4 (slowest)

Maintenance

The operator has to make sure that safety-related and machine-technical installations are to be inspected by an expert after every year in the course of an acceptance test.

The operator has to make sure that safety-related and machine-technical installations are to be inspected by a skilled person once a year.

The following points have to be considered during the inspection:

- 01) All screws used for installing the device or parts of the device have to be tightly connected and must not be corroded.
- 02) There may not be any deformations on housings, fixations and installation spots.
- 03) Mechanically moving parts like axles, eyes and others may not show any traces of wearing.
- 04) The electric power supply cables must not show any damages or material fatigue.

The Spectral PC 400Z IP requires almost no maintenance. However, you should keep the unit clean. Otherwise, the fixture's light output will be significantly reduced. Disconnect the mains power supply, and then wipe the cover with a damp cloth. Do not immerse in liquid. Wipe lens clean with glass cleaner and a soft cloth. Do not use alcohol or solvents.

The front lens will require weekly cleaning, as smoke-fluid tends to build up residues, reducing the light-output very quickly.

Keep connections clean. Disconnect electric power, and then wipe the DMX connections with a damp cloth. Make sure connections are thoroughly dry before linking equipment or supplying electric power.

Troubleshooting

This troubleshooting guide is meant to help solve simple problems.

If a problem occurs, carry out the steps below in sequence until a solution is found. Once the unit operates properly, do not carry out following steps.

No Light

If the light effect does not operate properly, refer servicing to a technician.

Suspect two potential problem areas as: the power supply and the LEDs.

- 01) Power supply. Check that the unit is plugged into an appropriate power supply.
- 02) The LEDs. Return the Spectral to your Showtec dealer.
- 03) If both of the above appear to be O.K., plug the unit in again.
- 04) If you are unable to determine the cause of the problem, do not open the Spectral, as this may damage the unit and the warranty will become void.
- 05) Return the device to your Showtec dealer.

No Response to DMX

Suspect the DMX cable or connectors, a controller malfunction, a light effect DMX card malfunction.

- 01) Check the DMX setting. Make sure that DMX addresses are correct.
- 02) Check the DMX cable: Unplug the unit; change the DMX cable; then reconnect to electrical power. Try your DMX control again.
- 03) Determine whether the controller or light effect is at fault. Does the controller operate properly with other DMX products? If not, take the controller in for repair. If so, take the DMX cable and the light effect to a qualified technician.

Problem	Probable cause(s)	Solution
One or more fixtures do not function at all	No power to the fixture	<ul style="list-style-type: none"> Check if power is switched on and cables are plugged in
	Internal fuse blown	<ul style="list-style-type: none"> Return the device to your local Showtec dealer.
Fixtures reset correctly, but all respond erratically or not at all to the controller	The controller is not connected.	<ul style="list-style-type: none"> Connect controller.
	3-pin XLR Out of the controller does not match XLR Out of the first fixture on the link (i.e. signal is reversed)	<ul style="list-style-type: none"> Install a phase reversing cable between the controller and the first fixture on the link
Fixtures reset correctly, but some respond erratically or not at all to the controller	Poor data quality	<ul style="list-style-type: none"> Check data quality. If much lower than 100 percent, the problem may be a bad data link connection, poor quality or broken cables, missing termination plug, or a defective fixture disturbing the link
	Bad data link connection	<ul style="list-style-type: none"> Inspect connections and cables. Correct poor connections. Repair or replace damaged cables
	Data link not terminated with 120 Ohm termination plug	<ul style="list-style-type: none"> Insert termination plug in output jack of the last fixture on the link
	Incorrect addressing of the fixtures	<ul style="list-style-type: none"> Check address setting
	One of the fixtures is defective and disturbs data transmission on the link	<ul style="list-style-type: none"> Bypass one fixture at a time until normal operation is restored: unplug both connectors and connect them directly together. Have the defective fixture serviced by a qualified technician
	3-pin XLR Out on the fixtures does not match (pins 2 and 3 reversed)	<ul style="list-style-type: none"> Install a phase-reversing cable between the fixtures or swap pin 2 and 3 in the fixture that behaves erratically
No light or LEDs cuts out intermittently	Fixture is too hot	<ul style="list-style-type: none"> Allow the fixture to cool down Make sure air vents in control panel and the front lens are not blocked Turn up the air conditioning
	LEDs damaged	<ul style="list-style-type: none"> Disconnect the fixture and return it to your dealer
	The power supply settings do not match local AC voltage and frequency	<ul style="list-style-type: none"> Disconnect fixture. Check settings and correct if necessary

Product Specifications

Model:	Showtec Spectral PC 400Z IP
Input voltage:	100-240V AC, 50/60Hz
Power consumption:	45W (full output)
DMX linking:	30pcs
Power linking @110V	20pcs
Power linking @240V	40pcs
Dimensions:	230 x 135 x 330 mm (LxWxH)
Weight:	3,5 kg
Operating and Programming:	
Signal pin OUT:	Pin 1 (earth), pin 2 (-), pin 3 (+)
DMX Mode:	9, 9, 12, 17 channels
Signal input:	5-pin DMX IN
Signal output:	5-pin DMX OUT
Electro-mechanical effects:	
Light source:	1 x Osram RGBW LED
Lux @ 2m:	4160 (18°)
Lux @ 1m:	56000 (3,5°)
Beam angle:	3,5°-18°
Dimmer:	0-100%
Strobe:	0-25Hz
Housing:	Die-cast aluminum
DMX-control:	via standard DMX-controller
Onboard:	LCD display for easy setup
Control:	Static Colors, Auto, Master/Slave, DMX-512
Connections:	Dedicated IP rated power & data connectors
Cooling:	Convection
IP rating:	IP65
Max. ambient temperature t_a :	40°C
Max. housing temperature t_B :	80°C
Minimum distance:	
Minimum distance from flammable surfaces:	0,5 m
Minimum distance to lighted object:	1 m

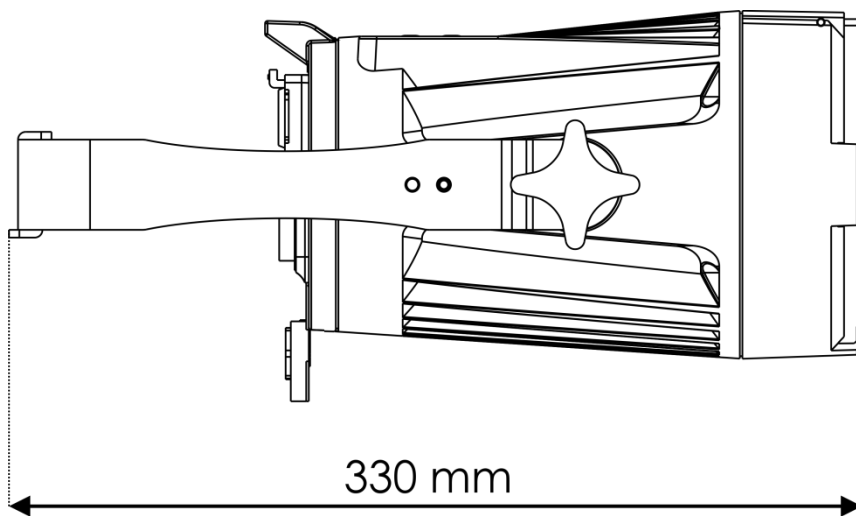
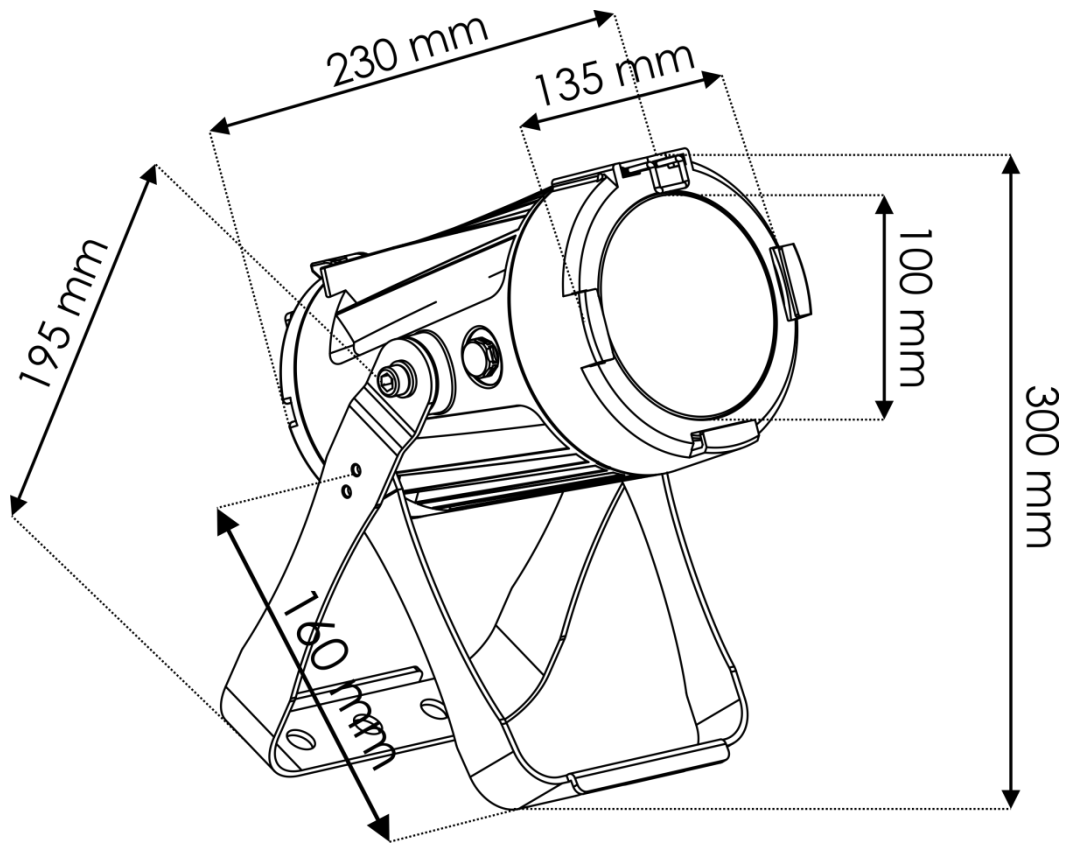
Design and product specifications are subject to change without prior notice.



Website: www.Showtec.info

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Dimensions





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