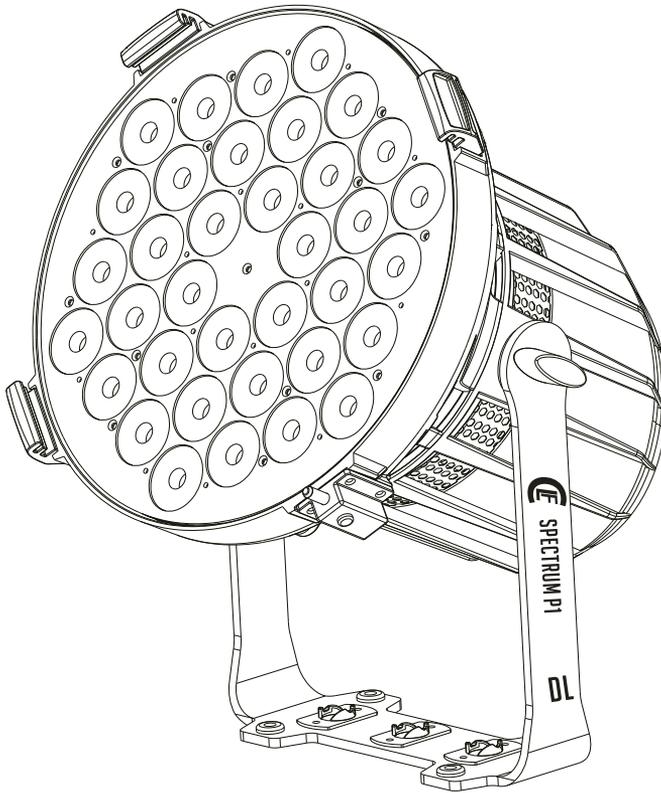


# CLF SPECTRUM P1

# MANUAL



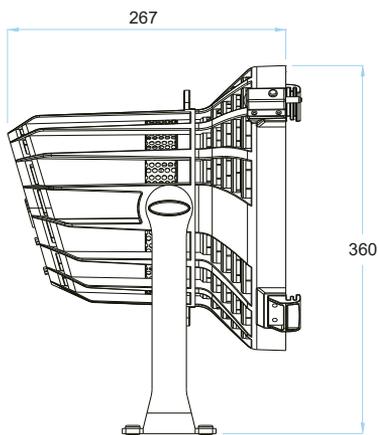
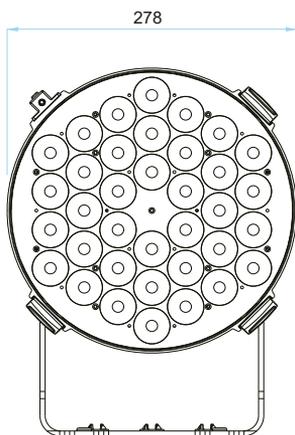
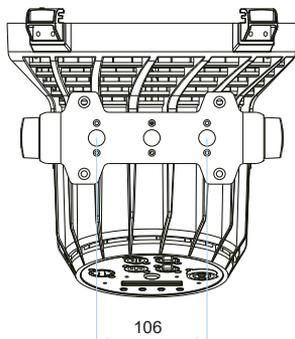
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# DIMENSIONS

ALL DIMENSIONS ARE IN MILLIMETERS



# SAFETY INSTRUCTION



## WARNING!

Read the safety precautions in this section before installing, powering, operating or servicing this product

The following symbols are used to identify important safety information on the product and in this manual:



**DANGER!**  
Safety hazard.  
Risk of severe injury or death.



**DANGER!**  
Hazardous voltage. Risk of lethal or severe electric shock.



**WARNING!**  
Fire hazard.



**WARNING!**  
LED light emission. Risk of eye injury.



**WARNING!**  
Burn hazard. Hot surface. Do not touch.



**WARNING!**  
Wear protective eyewear.



**WARNING!**  
Refer to user manual.



**Warning! Risk Group 3 (high risk) LED product according to EN 62471. Do not look into the beam at a distance of less than 8.3 meters from the front surface of the product. Do not view the light output with optical instruments or any device that may concentrate the beam.**

This product is for professional use only. It is not for household use.

This product presents risks of severe injury or death due to fire and burn hazards, electric shock and falls.



Read this manual before installing, powering or servicing the fixture, follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture. If you have questions about how to operate the fixture safely, please contact your supplier.

## PROTECTION FROM ELECTRIC SHOCK



- Disconnect the fixture from AC power before removing or installing any cover or part and when not in use.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.



- Before using the fixture, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- Power input and throughput cables must be rated 20 A minimum, have three conductors 1.5 mm<sup>2</sup> (16 AWG) minimum conductor size and an outer cable diameter of 5 - 15 mm. Cables must be hard usage type (SJT or equivalent) and heat-resistant to 90° C minimum.
- Use only PowerCON TRUE 1<sup>®</sup> cable connectors to connect to power input sockets. Use only PowerCON TRUE 1<sup>®</sup> cable connectors to connect to power through put sockets.
- Isolate the fixture from power immediately if the power plug or any seal, cover, cable, or other component is damaged, defective, deformed, wet or showing signs of overheating. Do not reapply power until repairs have been completed.
- Refer any service operation not described in this manual to a qualified technician.
- Socket outlets used to supply fixture fixtures with power or external power switches must be located near the fixtures and easily accessible so that the fixtures can easily be disconnected from power.

## PROTECTION FROM BURNS AND FIRE



- The exterior of the fixture becomes hot during use. Avoid contact by persons and materials. Allow the fixture to cool for at least 5 minutes before handling.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 100 mm away from the fixture.
- Keep flammable materials well away from the fixture.
- Ensure that there is free and unobstructed airflow around the fixture.



- Do not illuminate surfaces within 200 mm of the fixture.
- Do not attempt to bypass thermostatic switches or fuses.
- If you relay power from one fixture to another using power throughput sockets, do not connect more than 4 fixtures in total to each other in an interconnected chain.
- Connect only other fixture to fixture power throughput sockets.
- Do not connect any other type of device to these sockets.
- Do not stick filters, masks or other materials onto any optical component.
- Do not modify the fixture in any way not described in this manual.

## PROTECTION FROM INJURY



- Do not look continuously at LEDs from a distance of less than 3 meters from the front surface of the fixture without protective eyewear such as shade 4-5 welding goggles. At less than this distance, the LED emission can cause eye injury or irritation. At distances of 3 meters and above, light output is harmless to the naked eye provided that the eye's natural aversion response is not overcome.



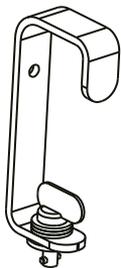
- Do not look at LEDs with magnifiers, telescopes, binoculars or similar optical instruments that may concentrate the light output.



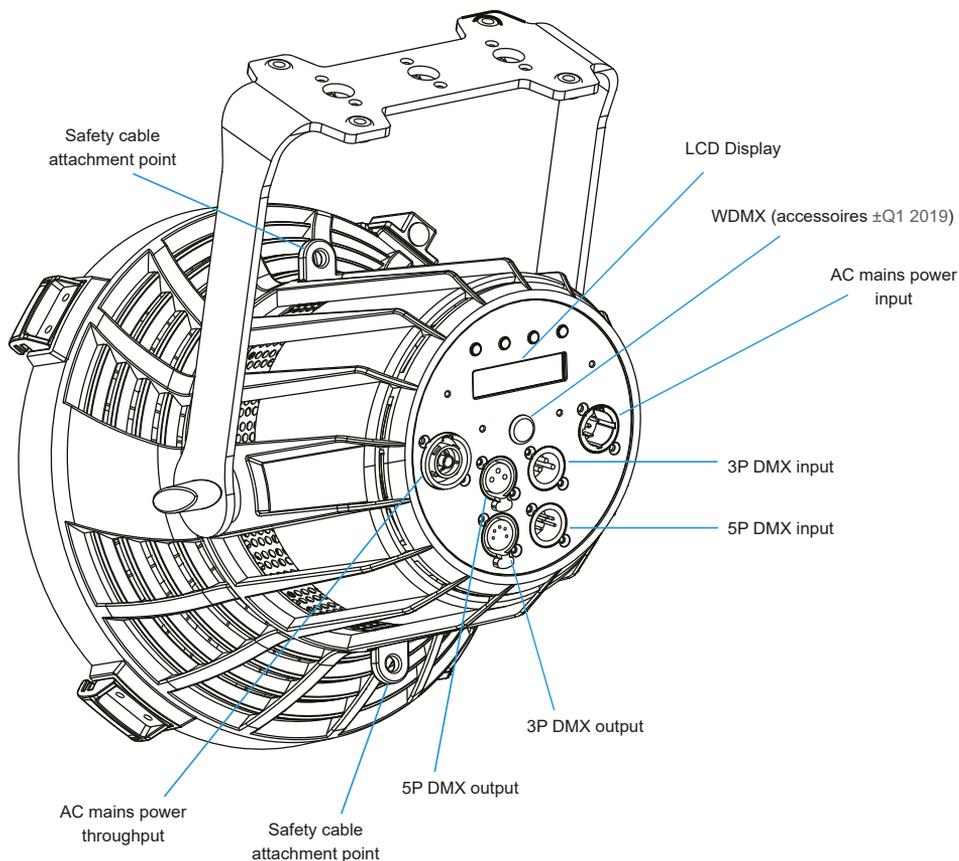
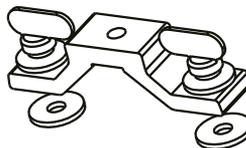
- Ensure that persons are not looking at the LEDs from within 8.3 meters when the product lights up suddenly. This can happen when power is applied, when the product receives a DMX signal, or when SERVICE menu items are selected.
- Fasten the fixture securely to a fixed surface or structure when in use. The fixture is not portable when installed.
- Ensure that any supporting structure and/or hardware used can hold at least 10 times the weight of all the devices they support.
- Allow enough clearance around the head to ensure that it cannot collide with an object or another fixture when it moves.
- Check that all external covers and rigging hardware are securely fastened.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.
- Do not operate the fixture with missing or damaged covers, shields or any optical component.

# FIXTURE OVERVIEW

G Clamp with Quicklock # 875760 (Optional)



Omega bracket with Quicklock # 520114/520113 (accessoires)



# INTRODUCTION

## POWERFUL COLD WHITE LED PAR

- Impressive output
- 5700K cold white LEDs
- Touring-ready, compact housing
- PowerCON TRUE in and out
- XLR3 and XLR5 pin
- 9° beam angle

## USING FOR THE FIRST TIME

**Warning!** Read “Safety Information” before installing, powering, operating or servicing the fixture. Before applying power to the fixture:



Check that the local AC mains power source is within the fixture's power voltage and frequency ranges.

See “Power cables and power plug” on page 6. Install a PowerCON TRUE 1 ® power input connector power cable.

# AC POWER

**Warning!** Read “Safety Information” starting on before connecting the fixtures to AC mains power.



**Warning!** For protection from electric shock, the fixture must be grounded (earthed). The power distribution circuit must be equipped with a fuse or circuit breaker and ground-fault (earth-fault) protection.

**Warning!** Socket outlets or external power switches used to supply the fixture with power must be located near the fixture and easily accessible so that the fixtures can easily be disconnected from power.



**Important!** Do not insert or remove PowerCON TRUE 1 ® connectors to apply or cut power, as this may cause arcing at the terminals that will damage the connectors.

**Important!** Do not use an external dimming system to supply power to the fixture, as this may cause damage to the fixture that is not covered by the product warranty.

The fixture can be hard-wired to a electrical installation if you want to install it permanently, or a power plug that is suitable for the local power outlets can be installed on the power cable.

## POWER VOLTAGE



**Warning!** Check that the voltage range specified on the fixtures serial number label matches the local AC mains power voltage before applying power to the fixture.

The fixtures accepts AC mains power at 100-240 V nominal, 50/60 Hz. Do not apply AC mains power to the fixture at any other voltage than specified.

## POWER CABLES

Power input and throughput cables must be rated 16A minimum, have three conductors 1.5 mm<sup>2</sup> (16 AWG) minimum conductor size and an outer cable diameter of 5 - 15 mm. Cables must be hard usage type (SJT or equivalent) and heat-resistant to 90°C minimum. In the EU the cable must be HAR approved or equivalent.

If you install a power plug on the power cable, install a grounding-type (earthed) plug that is rated 16A minimum. Follow the plug manufacturer's instructions. Table 1 shows standard wire color-coding schemes and some possible pin identification schemes; if pins are not clearly identified.

Wire Color (EU models)	Wire Color (US models)	Conductor	Symbol
Brown	Black	Live	L
Blue	White	Neutral	N
Yellow/Green	Green	Ground (earth)	 or 

Table 1: Wire color-coding and power connections

## RELAYING POWER TO OTHER DEVICES

Warning! Do not connect more than ten fixtures in total to AC mains power in one interconnected chain. Power can be relayed to another device via the PowerCON TRUE 1 @ throughput socket.

If you daisy chain the fixtures in a chain so that they all draw AC mains power via the first fixture, certain points must be respected:

- A heavy duty, three-conductor, 16 AWG or 1.5 mm<sup>2</sup> cable with SJT or equivalent cable jacket must be used to connect the first fixture to AC mains power.
- PowerCON TRUE 1 @ connectors must be used to draw AC mains power from the fixtures power throughput sockets and yellow PowerCON TRUE 1 @ connectors must be used to supply power at the fixture's power input sockets.
- No matter what the AC mains power voltage is, do not connect more than ten the fixture in total ( including the first fixture) to AC mains power in one interconnected daisy chain using power input and through out connectors.

# DATA LINK

A DMX 512 data link is required in order to control a fixture via DMX. The fixture has 5-pin XLR connectors for DMX data input and output. The pin-out on all connectors is pin 1 = shield, pin 2 = cold (-), and pin 3 = hot (+) Pins 4 and 5 in the 5-pin XLR connectors are not used.

## TIPS FOR RELIABLE DATA TRANSMISSION

To connect the fixture to data:

1. Connect the DMX data output from the controller to the 5-pin XLR connector of the nearest fixture.
2. Connect the DMX output of the fixture closest to the controller to the DMX input of the next fixture and continue connecting fixtures output to input.

# PHYSICAL INSTALLATION



Warning! The fixture must be either fastened to a flat surface such as a stage or wall, or clamped to a truss or similar structure in any orientation using a rigging clamp.

Warning! If the fixture can cause injury or damage if it falls, attach an approved safety cable to one of the safety cable attachment points on the base (see "Fixture overview").

Check that all surfaces to be illuminated are minimum 200 mm. from the fixture, that combustible materials (wood, fabric, paper, etc.) are minimum 100 mm. from the fixture, that there is free airflow around the fixture and that there are no flammable materials nearby.

## FASTENING THE FIXTURE TO A FLAT SURFACE

The fixture can be fastened to a fixed flat surface that is oriented at any angle. Check that the surface can support at least 10 times the weight of all fixtures and equipment to be installed on it.

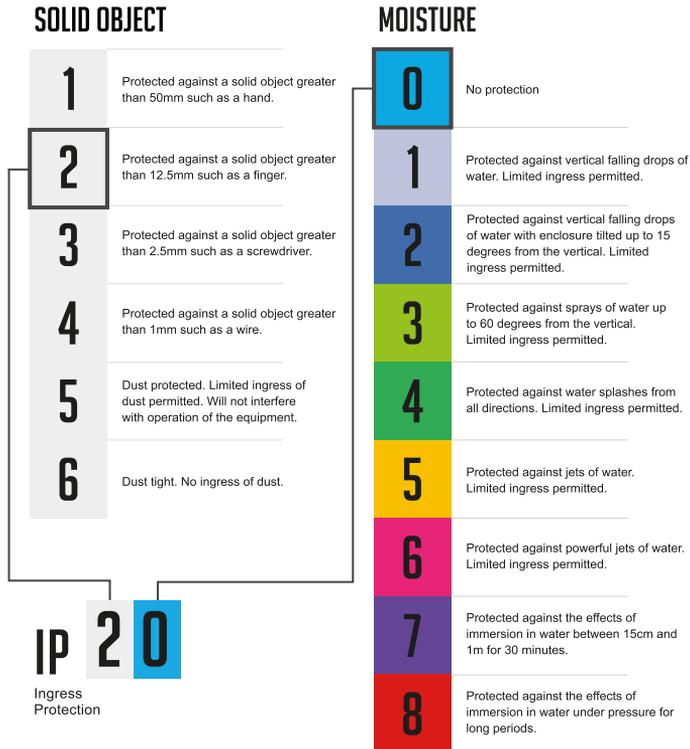


Warning! The supporting surface must be hard and flat or cooling may be blocked, which will cause overheating. Fasten the fixture securely. Do not stand it on a surface or leave it where it can be moved or can fall over. Attach a securely anchored safety cable to the safety cable attachment point (see "Fixture overview") if the fixture is to be installed in any location where it may fall and cause injury or damage if the primary attachment fails.

1. Block access under the work area. Working from a stable platform, hang the fixture on the truss with the arrow on the base towards the area to be illuminated. Tighten the rigging clamp.
2. Secure the fixture against clamp failure with a secondary attachment such as an approved safety cable that is rated for the weight of the fixture using one of the attachment points at the edges of the base (see "Fixture overview"). Do not use any other part of the fixture as a safety cable attachment point.

# INDOOR IP-RATED FIXTURES

CLF products are applied to official classified IP norm levels, for this product the IP rate is IP20.



## FIXTURES TEMPERATURE SPECIFICATION

Make sure the fixture is used within its working temperature range. Outside this range we cannot guarantee correct operation.

### TEMPORARY USAGE:

Stage event equipment is designed with temporary use in mind. Our product purpose is for theatre, festival, (disco) clubs and indoor & outdoor concerts. Long term use is possible but keep in mind that it can bring damage to aging materials and affect the coated surface (i.e. stainless steel). Rubber sealings will be negatively affected after long-term UV exposure and should be checked by qualified service technicians over time.

Tighten screws too hard will also affect the IP-rating.

# SETUP

Warning! Read "Safety Information" before installing, powering or operating the fixture.

## CONTROL PANEL AND MENU NAVIGATION

The onboard control panel and backlit graphic display are used to set the fixture's DMX address, configure individual fixture settings (personality), read out data and execute service utilities. See "Onboard control menus" on page 13 for a complete list of menus and commands.

Using the control buttons

- To enter the menu select [MODE].
- Press [UP] and [DOWN] to scroll within a menu or adjust values.
- To enter a menu, select a function or apply a selection, press [ENTER].
- To escape a function or move back one level in the menu structure, press [MODE].
- Hold [MENU] = static color
- Hold [ENTER] = highlight for 15 seconds
- Press [UP] and [DOWN] together to rotate display

## DMX ADDRESS SETTING

The DMX address, also known as the start channel, is the first channel used to receive instructions from the controller. For independent control, each fixture must be assigned its to a separate channel. The DMX address can be configured by using the DMX ADDRESS menu in the control panel. For setting the DMX address press [ENTER] before you can change the address.

- The main screen will show a 'dot' and the backlight will be switched off when a DMX signal is detected.
- The fixture is fully RDM ready. So when you are using a RDM ready console you can address the unit and read out its complete status. For RDM functions please refer to the ANSI/ESTA E1.20-2006 standard

## W-DMX CONTROL (OPTIONAL ±Q1 2019)

Go to the W-DMX section in the main menu, press the button "UP" to switch off Wireless DMX or disconnect with all connected Transmitters.

Press the button "DOWN" to set the unit in the "ready to connect with all not connected transmitters' mode. If you press the mode button on the Wireless solution transmitter all the units in this mode will be connected.

If the unit is successfully connected in the home display the sign "▲: V " appears. If the unit is not connected to a transmitter in the home display the sign "▲: X ". If the unit is switched off in the home display the sign "▲: OFF ".

- Holding the **MENU** and **ENTER** button for more than 3 seconds, the wireless board will reset.
- Do not use Wireless DMX and Wired DMX at the same time because it will give unwanted interference

# CONTROL MODE

DMX control mode is selected in the CONTROL MODE menu. The fixture can be controlled with 2 DMX control modes:

	2ch	3ch
Strobe		✓
Dimmer	✓	✓
Dimmer fine	✓	✓

# CONTROL PANEL

Here you can set all functions for the fixture.

## PERSONALITY

LED MODE	normal mode = The output will be changed with the temperature	Regulated (power : 420W, FAN : variable) Full (power : 420W, FAN : 4000RPM) Silent 1 (power : 380W, FAN : 2000RPM) Silent 2 (power : 400W, FAN : 3000RPM)
	brightness first = High output mode	Regulated (power : 420W, FAN : variable) Full (power : 420W, FAN : 4000RPM) Silent 2 (power : 400W, FAN : 3000RPM)
	silence operation = Three level of silent mode to control the output, when temperature higher than 50°C, it will lower down by fan speed and led output	Regulated (power : 400W, FAN : 3000RPM) Silent 1 (power : 380W, FAN : 2000RPM) Silent 2 (power : 400W, FAN : 3000RPM)
	safe operation = when it is higher than 80 °C, will turn off fixture	Regulated (power : 355W, FAN : variable) Full (power : 355W, FAN : 4000RPM) Silent 2 (power : 355W, FAN : 3000RPM)
Dimmer speed	"Normal" means select linear dimming, or choose dimmer 1-4 to control the dimming speed, dimming 1 of the fastest dimming curves, 4 for the most slowly dimming curve.	
Dimmer curve	Linear / Square law / INV Square law / S- Curve / Special	
W-DMX	ON = Turn on the Wireless Board OFF = Turn off the Wireless Board RESET = Reset the Wireless Board	
DMX HOLD	DMX HOLD = The fixture will remember on last values when you disconnect DMX NO DMX HOLD = The fixture has no output when you disconnect DMX FULL output = The fixture always full output	
LCD Brightness	Set the LCD display brightness (1-10)	
LCD Background	Controls the duration of the backlight of the OLED display Always on = continuously on 10 sec = 10 seconds before switch off 20 sec = 20 seconds before switch off 30 sec = 30 seconds before switch off	
Temperature display	ON / OFF	
Refresh rate	Controls the flicker frequency of the fixture 1.2K / 4.8K / 9.6K Hz	

## INFORMATION

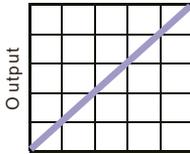
Software type	Shows software version (Vx.x)	
Usage time	Use of time and use time reset (password)	
Temperature	LED board current temperature xxx°C (Stored max:xxx°C, Stored min:xxx°C)	
RDM.UID	Shows the unique ID for the RDM protocol. <0x02E20002xxxx>	
Error message	No errors detected	Clear error message?
	Error message	

## FACTORY RESET

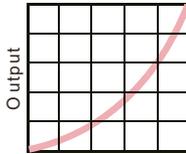
Resets the fixture to its factory default settings.

# DIMMER CURVE

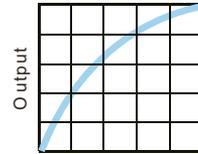
provides five dimming options (see picture below):



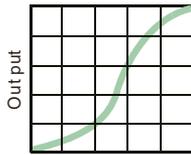
DMX %  
**LINEAR**



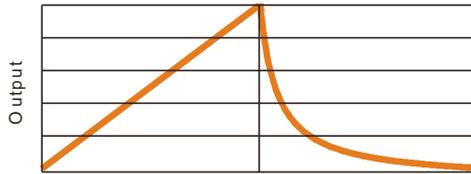
DMX %  
**SQUARE LAW**



DMX %  
**INVERSE SQUARE LAW**



DMX %  
**S-CURVE**



**SPECIAL**

- **LINEAR** – the increase in light intensity appears to be linear as DMX value is increased.
- **SQUARE LAW** – light intensity control is finer at low levels and coarser at high levels.
- **INV Square law** – light intensity control is coarser at low levels and finer at high levels.
- **S-CURVE** – light intensity control is finer at low levels and high levels and coarser at medium levels.
- **Special** – the light intensity was linear increase with DMX value , and light intensity control is finer at low level with DMX values decrease , the dimmer speed will also has effect on it.

Whichever DIMMER CURVE option you select, you can choose between NORMAL or SMOOTH 1 / 2 / 3 / 4 dimming settings:

- **NORMAL** is the default setting. It gives a virtually instantaneous reaction when you dim from one intensity to another, but dimming slowly from one intensity to another may appear slightly uneven.
- The **SMOOTH 1 / 2 / 3 / 4** setting gives smoother dimming during slow changes in intensity, but it limits the speed of dimming changes slightly. This makes it ideal for slow, smooth dimming, but a short time-lag may be noticeable if you try to dim quickly from one intensity to another.

# ONBOARD CONTROL MENU

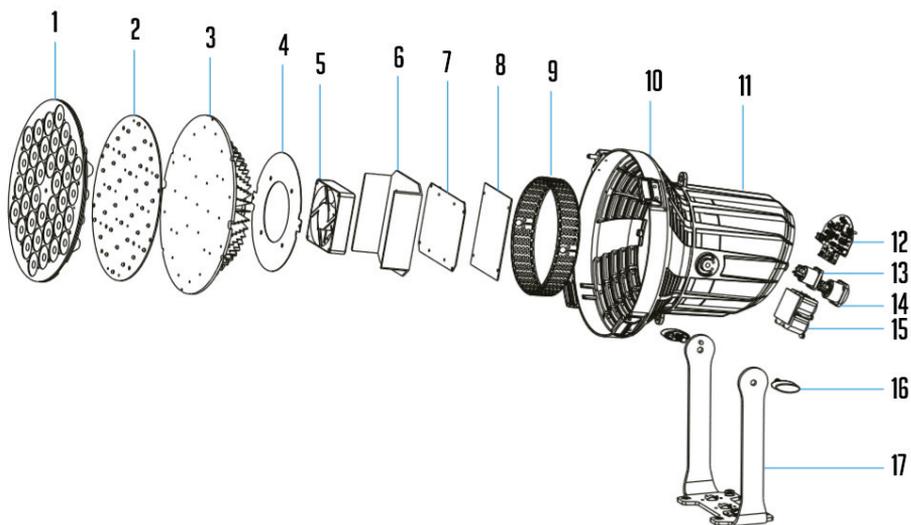
NO.	Main menu	Menu level 2	Menu level 3	Remark	
1	DMX ADDRESS	<001>		Default : 001	
2	CONTROL MODE	2CH 3CH	1. Dimmer, 2.Dimmer fine 1. Strobe, 2. Dimmer, 3.Dimmer fine	Default : 2CH	
3	Static color	White Strobe	0 - 255 0 - 255	Default : 255 same function as the 3 channel strobe function	
3	PERSONALITY	LED MODE	Normal mode	Regulated Full Silent 1 Silent 2	Default : Normal mode
			Brightness first	Regulated Full Silent 2	
			Silence operation	Regulated Silent 1 Silent 2	
			Safe operation	Regulated Full Silent 2	
		Dimmer speed	Normal	Default : Normal	
			Smooth 1 / Smooth 2 / Smooth 3 / Smooth 4		
		Dimmer curve	Linear	Default : Linear	
			Square law		
			INV Square law		
			S- Curve Special		
W-DMX	ON / OFF / RESET	Default : ON			
DMX HOLD	DMX HOLD	Default : DMX HOLD			
	NO DMX HOLD				
	FULL output				
LCD Brightness	Level 1- 5 - 10				
LCD Background	Always on / 10sec / 20sec / 30sec	Default : 10S			
Temperature display	ON / OFF	Default : ON			
Refresh rate	1.2K Hz / 4.8K Hz / 9.6K Hz	Default : 4800 Hz			
4	Info	Software	VX.XX		
		Usage time	Total:xxxxH		
		Temperature	xxx°C	Stored max: xx°C Stored min: xx°C	
		RDM-UID	0x02E20002xxxx		
		Error message	No errors detected Error message	Clear error message?	
5	Factory reset	LOAD	Please reboot power before reset takes effect!		

# DMX PROTOCOLS

2 CH	Function	Value	Setting	Remark
1	<b>Dimmer</b>	000 - 255	0 - 100%	
2	<b>Dimmer fine</b>	000 - 255	Dimmer fine	

3 CH	Function	Value	Setting	Remark
1	<b>Shutter</b>	000 - 019	No function	
		020 - 024	Shutter open	
		025 - 064	Strobe 1 (fast → slow)	
		065 - 069	Shutter open	
		070 - 084	Strobe 2: opening pulse (fast → slow)	
		085 - 089	Shutter open	
		090 - 104	Strobe 3: closing pulse (fast → slow)	
		105 - 109	Shutter open	
		110 - 124	Strobe 4: random strobe (fast → slow)	
		125 - 129	Shutter open	
		130 - 144	Strobe 5: random opening pulse (fast → slow)	
		145 - 149	Shutter open	
		150 - 164	Strobe 6: random closing pulse (fast → slow)	
		165 - 169	Shutter open	
		170 - 184	Strobe 7: burst pulse (fast → slow)	
		185 - 189	Shutter open	
		190 - 204	Strobe 8: random burst pulse (fast → slow)	
205 - 209	Shutter open			
210 - 224	Strobe 9: sine wave (fast → slow)			
225 - 229	Shutter open			
230 - 244	Strobe 10: burst (fast → slow)			
245 - 255	Shutter open			
2	<b>Dimmer</b>	000 - 255	0 - 100%	
3	<b>Dimmer fine</b>	000 - 255	Dimmer fine	

# EXPLODED VIEW



NO.	Description	Part number
1	Lens kit	CLF-18-002
2	LED board	CLF-18-001
3	LED board radiator	CLF-18-003
4	Mount plate fan	CLF-18-007
5	Fan	CLF-18-013
6	Power supply	CLF-18-012
7	Power supply support bracket	CLF-18-008
8	Driver board	CLF-18-016
9	Air inlet ring	CLF-18-010
10	Front case body	CLF-18-004
11	Back case body	CLF-18-005
12	Display board	CLF-18-017
13	PowerCON TRUE1 input socket	CLF-14-027
14	PowerCON TRUE1 output socket	CLF-14-028
15	XLR board	CLF-18-018
16	Knob bracket	CLF-14-014
17	Bracket	CLF-18-009

# SPECIFICATIONS

## Power

Input voltage & rate	100-240V, 50/60Hz
Standby power	10W
Nominal total power consumption (at nominal voltage 230V)	430 W
Typical current (at nominal voltage 230V)	1.9A
Cos $\varphi$	0,97
Power plug type	Seetronic PowerCon True

## Configuration

LED color	COLD white
LED color temperature	5700 K
LED CRI level	> 90
Quantity of LED	36 pcs
Dimming frequency	1200/4800/9600
Dimmer resolution	16 bit

## Optical

Beam angle	9°
------------	----

## Photometric

Output @1M	265.000 lux
Output @5M	23.000 lux

## Heat management

Cooling type:	Fan inside
MAX. Ambient temp (Ta max)	40, °C
MIN. Ambient temp (Ta min)	-20, °C
MAX housing temp.(ta=25°C)	40, °C
MAX housing temp.(ta=40°C)	53, °C

## Menu

Auto program	none
Static color	yes
Manual calibration	none
Factory calibration	none
Strobe speed	0 - 20Hz
Random strobe	yes

\* PF = power factor. Measurements made at nominal voltage with all LEDs at full intensity. Allow for a deviation of +/- 10%.

## Control

Control protocol	USITT DMX512/1990
DMX channel range	2 / 3
RDM	yes
RDM compliance	ANSI/ESTA E.120
WDMX	optional
ACN	none
DMX input connection	DMX 5P in en out, DMX 3P in en out
Data input (artnet, SACN)	none

## Hardware

Interface	Backlite LCD display
Software upload method	XLR

## Installation

IP rating	IP20
-----------	------

## Housing

Safety attachment point	yes
-------------------------	-----

## Physical

Net product weight	5.7 kg
Machine dimensions - Length	278 mm
Machine dimensions - Width	278 mm
Machine dimensions - Height	346 mm

## Accessories

Included items

## Approvals

Approved certifications

\* PF = power factor. Measurements made at nominal voltage with all LEDs at full intensity. Allow for a deviation of +/- 10%.



# SPECTRUM P1