

BL fiberOPTIC Petra Installation & Operation Manual



Please read this manual fully before installing, operating or performing maintenance on the illuminator unit.

INTRODUCTION

Thank you for purchasing this BL fiberSOURCE Petra RGBW Illuminator.

Please read this Installation & Operation Manual completely prior to installation and operation of the BL fiberSOURCE illuminator.

Please note that these instructions are guidelines only and in no way supersede any construction or installation standards. Local building and electrical codes should be consulted prior to installation.

Warning:

There is potential danger of electrical shock when operating electrical equipment, ensure the unit is turned off and disconnected from power prior to installation.

Solid State Lighting is sensitive to power fluctuations. Surge Protection is highly recommended for all LED lighting products and should be on a designated circuit to ensure optimal service life.

- Do not attempt to open non-serviceable parts inside the illuminator
- Installation must be performed by a qualified professional in accordance with local codes.
- The illuminator should be installed in an accessible, dry, and well ventilated environment, minimum clearance of 8" (0.2M) is required from surrounding surfaces.
- BL fiberSOURCE illuminators are equipped with a mounting plate or feet, for securing to a vertical or horizontal surface.
- Do not modify or alter the illuminator, there are no user-serviceable parts inside.
- Ensure each BL fiberSOURCE illuminator is surge protected.
- It is recommended to bench test BL fiberSOURCE illuminators prior to fixing into place.

Never look directly into BL fiberSOURCE through the port aperture, and always position carefully to avoid unexpectedly staring into the BL fiberSOURCE at a distance closer than 10ft (3M).

BL fiberSOURCE Petra is a high performance, white light LED illuminator, designed to integrate with BL fiberOPTIC. Options include white light only, color changing or twinkle effects. Models may be ordered equipped with optional 6 Color Wheel or Twinkle Wheel and are dimmable.

The light source is fitted with a 90W white LED in 5500K, 4000K or 3000K, and has a 50,000 hour lamp life. Manual operation is easy using the on board knob and dip switch controls, or take charge of your color changing, dimming or twinkling effects with 010V or DMX control systems.

INSTALLATION

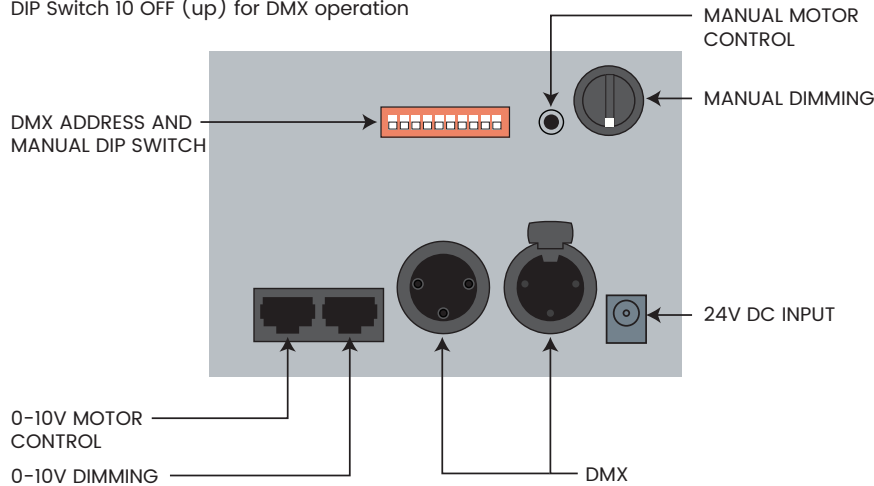
The LED illuminator is powered from a multifunction, multi-voltage, 24V/3.75A desktop LPS/Class 2 Power Supply Unit. The PSU is an IEC 100-24VAC power input device.



BL fiberSOURCE Petra is equipped with control functionality and configurable via rear panel dip switches and control knob.

Rear Panel View

DIP Switch 10 ON (down) for manual or 0-10V
DIP Switch 10 OFF (up) for DMX operation



CONNECTIONS – FOR MANUAL OPERATION

There are two connections required – the fiber port aperture and the main power supply. The fiber port aperture should be connected prior to connection to the main power supply.

Connect and secure the fiber optic connector into the collar in the front of the unit, and secure using the M5 locking screw, ensuring the connector is fully inserted before tightening the screw.

Never run BL fiberSOURCE with the fiber port connector out of the illuminator aperture.

Connect the IEC power cord into the 24VDC input connector on the back of BL fiberSOURCE, and plug the unit into the surge protected main power electrical socket. Switch on power, the PSU indicator will illuminate, and BL fiberSOURCE is ready for use. If no light is produced consult the troubleshooting section.

All BL fiberSOURCE Petra models in the range can be manually controlled as detailed in the following sections.

NORMAL MANUAL OPERATION – STANDARD WHITE LIGHT DIMMING

For normal manual operation DIP switch 10 must be ON

During normal manual white light operation BL fiberSOURCE Petra can be dimmed from 0 to 100% using the Manual Dimming Control on the side panel.

NORMAL OPERATION – EMERGENCY LIGHT WHITE LIGHT DIMMING

For normal manual operation DIP switch 10 must be ON

During normal manual white light operation the Emergency Light configured BL fiberSOURCE Petra can be dimmed from maximum light at 0%, to no light at 10%, and then again up to maximum light at 100% using the Manual Dimming Control on the side panel.

NORMAL MANUAL OPERATION – COLOR AND / OR TWINKLE WHEEL CONTROL – NO SENSOR

For normal manual operation DIP switch 10 must be ON

During normal manual Color Wheel or Twinkle Wheel operation BL fiberSOURCE Petra can be dimmed from 0 to 100% using the Manual Dimming Control and the motor can be controlled from stop to 5 speeds (see table below) using the push button Manual Motor Control on the side panel.

NOTE: When manually selecting stop (switch position 6) the wheel will stop instantly, on a random color on the Color Wheel, or a random section of the Twinkle Wheel

MANUAL OPERATION

Switch Position	1	2	3	4	5	6
Speed (RPM)	0.5	1.2	2.4	4	7.5	Stop

NORMAL MANUAL OPERATION – COLOR WHEEL CONTROL WITH SENSOR

For normal manual operation DIP switch 10 must be ON

During normal manual Color Wheel operation the BL fiberOPTIC Petra can be dimmed from 0 to 100% using the Manual Dimming Control and the motor can be controlled from stop to 4 speeds (see table below) using the push button Manual Motor Control on the side panel.

NOTE: When manually selecting stop (switch position 5) the Color Wheel will automatically return to color 1 (white, on a standard 6-Color Wheel)

Switch Position	1	2	3	4	5
Speed (RPM)	1.6	2.6	3.75	5.5	Stop

NORMAL MANUAL OPERATION – TWINKLE WHEEL CONTROL WITH SENSOR

For normal manual operation DIP switch 10 must be ON

During normal Twinkle Wheel operation the Light Source can be dimmed from 0 to 100% using the Manual Dimming Control and the motor can be controlled with stop + 5 speeds ranging from very slow to fast using the push button Manual Motor Control on the side panel.

NOTE: for this configuration of a Twinkle Wheel with sensor, the wheel is supplied with a cut out segment. The wheel in motion will give an uninterrupted twinkle by rotating backwards and forwards either side of the segment. When stop is selected the wheel will come to rest at the segment giving unobstructed white light output.

CONNECTION – 010V OPERATION

There are three connections required – the fiber port aperture, the 010V cable, and the main power supply. The fiber port aperture should be connected first, prior to connection to the main power supply.

Connect and secure the fiber optic connector into the collar in the front of the unit, and secure using the M5 locking screw, ensuring the connector is fully inserted before tightening the screw.

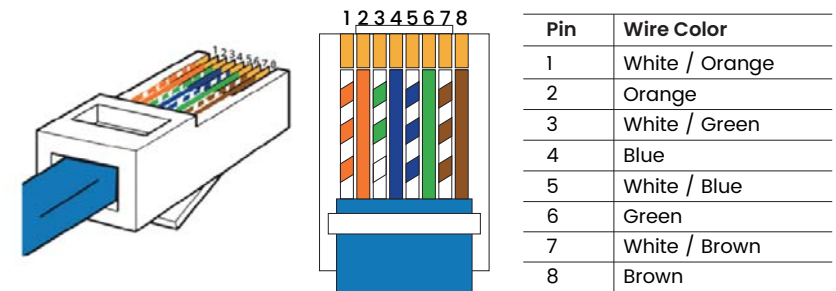
Never run BL fiberSOURCE with the fiber port connector out of the illuminator aperture.

Connect the IEC power cord into the 24VDC input connector on the back of BL fiberSOURCE, and plug the unit into the surge protected main power electrical socket. Switch on power, the PSU indicator will illuminate, and BL fiberSOURCE is ready for use. If no light is produced consult the troubleshooting section.

Connect the 010V RJ45 as detailed below using CAT5 cable.

NOTE:

for Emergency Light functionality, the main power supply for the light source must be maintained so that failure of the main power supply to the 010V controller will result in BL fiberSOURCE illuminating at maximum output.



0-10V RJ45 Connections:
-VE RJ45 Brown/White (Pin 7)
+VE RJ45 Blue/White (Pin 5)

010V OPERATION – STANDARD WHITE LIGHT DIMMING

For 010V dimming operation DIP switch 10 must be ON, the Manual Dimming Control on the side panel must be turned to minimum (fully counter clockwise), and the RJ45 plug must be plugged into the right hand RJ45 socket on the side panel.

The light source can be dimmed from 0 (0 Volts DC) to 100% (10V DC) with a receiving 010V signal.

010V OPERATION – EMERGENCY WHITE LIGHT DIMMING

For 010V dimming operation DIP switch 10 must be ON, the Manual Dimming Control on the side panel must be turned to minimum (fully counter clockwise), and the RJ45 plug must be plugged into the right hand RJ45 socket on the side panel.

BL fiberSOURCE Petra can be dimmed with a receiving 010V signal as detailed in the table below.

Function	Value DC	Description
Maximum Light	0V	Default Control, Emergency Main Power Supply Failure, Max. Light Output
Maximum Light	1V	Normal Dimming Control, Min. Light Output
Maximum Light	10V	Normal Dimming Control, Max. Light Output

NOTE:

in this configuration when the mains supply to the 010V controller fails, BL fiberSOURCE will illuminate fully as an emergency light source.

010V OPERATION – COLOR/TWINKLE WHEEL CONTROL – NO SENSOR

For 010V wheel control DIP switch 10 must be ON, and the RJ45 plug must be plugged into the left hand RJ45 socket on the side panel.

The BL fiberSOURCE Color/Twinkle Wheel can be controlled with a receiving 010V signal from stop at 0V to 7.5rpm at 10V.

NOTE:

for this configuration of a Twinkle Wheel without sensor, the Twinkle Wheel is solid with NO cut out segment, for full Twinkle Wheel effects.

010V OPERATION – COLOR/TWINKLE WHEEL CONTROL WITH SENSOR

For 010v wheel control DIP switch 10 must be ON, and the RJ45 plug must be plugged into the left hand RJ45 socket on the side panel.

The BL fiberSOURCE Color/Twinkle Wheel can be controlled with a receiving 010V signal as detailed in the following table.

Function	Value	Description
Color Wheel	0V	White (Color 1)
Color Wheel	0.7V	Yellow (Color 2)
Color Wheel	1.0V	Green (Color 3)
Color Wheel	1.4V	Orange (Color 4)
Color Wheel	1.8V	Magenta (Color 5)
Color Wheel	2.3V	Blue (Color 6)
Color Wheel	3V	Magenta (Color 5)
Color Wheel	3.4V	Orange (Color 4)
Color Wheel	3.7V	Green (Color 3)
Color Wheel	4.1V	Yellow (Color 2)
Color Wheel	4.6V	White (Color 1)
Color Wheel	5.0V to 7.3V	Slow to fast clockwise
Color Wheel	7.4V to 10V	Fast counter clockwise

NOTE:

for available wheel types see Color Wheel section.

010V OPERATION – TWINKLE WHEEL CONTROL SENSOR

For 010v wheel control DIP switch 10 must be ON, and the RJ45 plug must be plugged into the left hand RJ45 socket on the side panel.

NOTE:

for this configuration of a Twinkle Wheel with sensor, the wheel is supplied with a cut out segment, for full white light output operation.

The BL fiberSOURCE Petra Twinkle Wheel can be controlled with a receiving 010V signal to give stop (0V DC) to varying speeds (0.5 to 10V DC) ranging from very slow to fast.

NOTE:

for this configuration of a Twinkle Wheel with sensor, the wheel is supplied with a cut out segment, for full white light operation. The wheel in motion will give an uninterrupted twinkle by rotating backwards and forwards either side of the segment. When 0V is selected the wheel will come to rest at the segment giving unobstructed white light output.

CONNECTION – DMX OPERATION

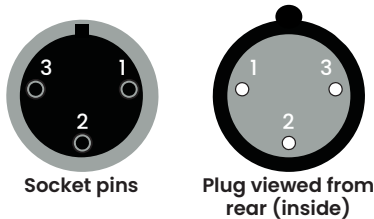
There are three connections required: the fiber port aperture, the main power supply cable, and the DMX control cable. The fiber port aperture should be connected first, prior to connection with the main power supply.

Connect and secure the fiber optic connector into the collar in the front of the unit, and secure using the M5 locking screw, ensuring the connector is fully inserted before tightening the screw.

Never run BL fiberSOURCE with the fiber port connector out of the illuminator aperture.

Connect to the 3 pin XLR sockets on the side panel as detailed below using an approved DMX cable.

Connect the IEC power cord into the 24VDC input connector on the back of BL fiberSOURCE, and plug the unit into the surge protected main power electrical socket. Switch on power, the PSU indicator will illuminate, and BL fiberSOURCE is ready for use. If no light is produced consult the troubleshooting section.



Pin	Description
1	SCREEN
2	Data -
3	Data +

NOTE:

It is recommended that a 120ohm terminating resistor be connected across DMX+ and DMX- on the last illuminator on the DMX universe or cable run.

Always 'daisy chain' a DMX cable or universe.

Never use a T joint on a DMX cable or universe, unless using an approved interface or splitter.

Never connect more than 30 devices to a single DMX universe unless using an approved interface or splitter.

DMX CHANNELS

Each BL fiberSOURCE Petra occupies 3 DMX channels as detailed in the following tables.

When selecting DMX addresses 3 channels must be available, for example if the first BL fiberSOURCE Petra is addressed to 009, the next must be 012, the next must be 015 and so on.

SETTING THE DMX ADDRESS

The DMX address of each illuminator is set manually using the DIP switch accessible on the side panel as shown below. Each switch number 1-9 indicates a binary number which added together make up the DMX address. Alternatively, use an online 'dip switch calculator' or app.

Switch Number	1	2	3	4	5	6	7	8	9	10
Function	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	DMX ADDRESS	Function select ON - manual or 0-10V OFF - DMX
Address Value	1	2	4	8	16	32	64	128	256	

Addresses are additive - for example, switches 2,5,7 on = address 082

DMX OPERATION – WHITE LIGHT DIMMING

For DMX dimming operation DIP switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The light source can be dimmed on DMX channel 1 as shown in the DMX table overleaf.

DMX OPERATION – COLOR/TWINKLE WHEEL CONTROL – NO SENSOR

NOTE:

for this configuration of a Twinkle Wheel without sensor, the Twinkle Wheel is solid with NO cut out segment, for full Twinkle Wheel effects.

For DMX wheel control DIP switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberSOURCE Petra Twinkle Wheel can be controlled on DMX channel 2 as shown in the following DMX table.

DMX OPERATION – LED / FAN CONTROL

For DMX LED and fan control, switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberSOURCE LED and Fan can be controlled on DMX channel 3 as shown in the following DMX table.

BL fiberSOURCE Petra DMX CHANNELS – TABLE 1

Each BL fiberSOURCE Petra occupies 3 DMX channels as detailed below.

Channel	Function	Value	Description
1	Dimming	0-255	From off at 0 to brightest at 255
2	Color / twinkle wheel	0	Wheel at stop
2	Color / twinkle wheel	1-255	Varying rotating speeds from very slow to 7.5rpm at maximum
3	LED & fan	0-250	LED & fan on
3	LED & fan	251-255	LED & fan off

DMX OPERATION – COLOR WHEEL CONTROL WITH SENSOR

For DMX wheel control DIP switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberOPTIC Petra Color Wheel can be controlled on DMX channel 2 as shown in the following DMX table.

DMX OPERATION – LED / FAN CONTROL

For DMX LED and fan control, switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberSOURCE Petra LED and Fan can be controlled on DMX channel 3 as shown in the following DMX table.

BL fiberSOURCE Petra DMX CHANNELS – TABLE 2

Each BL fiberSOURCE Petra occupies 3 DMX channels as detailed below.

Channel	Function	Value	Description
1	Dimming	0-255	From off at 0 to brightest at 255
2	Colorwheel	0-10	White - snap to color (color 1)
2	Colorwheel	11	Yellow - snap to color (color 2)
2	Colorwheel	21	Green - snap to color (color 3)
2	Colorwheel	31	Orange - snap to color (color 4)
2	Colorwheel	41	Magenta - snap to color (color 5)
2	Colorwheel	51-70	Blue - snap to color (color 6)
2	Colorwheel	71	Magenta - snap to color (color 5)
2	Colorwheel	81	Orange - snap to color (color 4)
2	Colorwheel	91	Green - snap to color (color 3)
2	Colorwheel	101	Yellow - snap to color (color 2)
2	Colorwheel	111	White - snap to color (color 1)
2	Colorwheel	128-188	Slow to fast rotation clockwise
2	Colorwheel	189-255	Fast to slow rotation counter clockwise
3	Colorwheel	0-250	LED and fan on
3	Colorwheel	251-255	LED and fan off

COLOR WHEELS

The standard Color Wheel has 6 glass segments as follows: White (Clear), Yellow, Green, Orange, Magenta, Blue.

Alternatively, a 6 segment or 4 segment Custom Color Wheel can be fitted providing the following color segment options:

FIRE O08	Orange O18	Golden Amber O59	Apricot O14
Canary Y89	Green G78	Jade G96	Turquoise C47
Italian Blue C45	Brilliant Blue B06	Bright Blue B28	Congo B93
Violet V43	Magenta M56	Pink M63	Clear - Outputs white light

DMX OPERATION – TWINKLE WHEEL CONTROL – WITH SENSOR

For DMX wheel control DIP switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberSOURCE Twinkle Wheel can be controlled on DMX channel 2 as shown in the following DMX table.

NOTE:

for this configuration of a Twinkle Wheel with sensor, the wheel is supplied with a cut out segment. The wheel in motion will give an uninterrupted twinkle by rotating backwards and forwards either side of the segment. When 0V is selected the wheel will come to rest at the segment giving unobstructed white light output.

DMX OPERATION – LED / FAN CONTROL

For DMX LED and fan control, switch 10 must be OFF and the XLR plug(s) must be plugged into the XLR sockets on the side panel.

The BL fiberSOURCE Petra LED and Fan can be controlled on DMX channel 3 as shown in the following DMX table.

BL fiberSOURCE Petra DMX CHANNELS – TABLE 3

Each BL fiberSOURCE Petra occupies 3 DMX channels as detailed below.

Channel	Function	Value	Description
1	Dimming	0-255	From off at 0 to brightest at 255
2	Twinkle wheel	0	Wheel at stop at cut out segment giving full white light
2	Twinkle wheel	1-255	Varying backwards and forward rotation from very slow to 7.5rpm at maximum
3	LED & fan	0-250	LED & fan on
3	LED & fan	251-255	LED and fan off

TROUBLESHOOTING

Problem	Probable Cause	Possible Solution
Unit is dead - no light output and PSU power indicator is out	Main power supply off	Check supply and reinstate
	Loose power cable or plug	Check plugs
	PSU failed	Replace PSU
Unit is dead - no light output but PSU power indicator is lit [1]	Dimming control at minimum	Adjust brightness on dimmer control
	DIP switch no. 10 not switched ON	Switch DIP switch 10 ON
	LED or driver failure	Replace illuminator
Color/ Twinkle Wheel not turning (2)	Motor control at minimum	Adjust motor control
	DIP switch no. 10 not switched ON	Switch DIP switch 10 ON
	Driver circuit or motor failure	Replace illuminator
Unit is not responding to DMX control [3]	DIP switch no. 10 is switched ON	Switch DIP switch no. 10 OFF
	DMX address not correctly set	Set correct DMX address
	No DMX signal from controller	Check DMX controller settings
	Wiring fault on DMX cables	Check cables and repair/replace
	Driver circuit failure	Replace illuminator
Not responding [4]	DIP switch no. 10 not switched ON	Switch DIP switch 10 ON
	No 0-10V signal at illuminator due to cable or controller fault	Check input to illuminator using a DMM set to correct range & rectify cable/controller fault
Wheel rotates between 0v & 0.25v [4]	Manual motor control (page 5) not set to stop	Set manual motor control to stop
Responding on wrong channels [4]	RJ45 connector in wrong socket on illuminator	Plug into correct socket

Problem	Probable Cause	Possible Solution
Not responding [5]	Manual dimming control not set to minimum	Turn manual dimmer control fully counter clockwise
Not responding [6]	If none of above, driver circuit failure	Replace illuminator
Poor light output on fiber	Light source dimmed manually or by 0-10V or DMX control	Check and increase dimmer settings
	LED or driver failure	Replace illuminator

- [1] - white light manual dimming version
 [2] - Color/Twinkle Wheel manual motor version
 [3] - for DMX only
 [4] - Color/Twinkle Wheel or dimming 010V control
 [5] - dimming 0-10V control
 [6] - 0-10V control

TECHNICAL SPECIFICATION

Port aperture size	1-3/16 " (30mm) / M30
Input voltage	100-240V AC, 47-63 Hz. 0.58A
PSU output	24V DC, 3.75A, 90W Maximum
LED type	LED engine LZP 24 die emitter
LED power	90W
Max current	400mA Max.
VA rating	96VA
Motor type	Rotalink 25C13/YS0LPSL3E 12V 60:1
Power cord	Standard IEC
PSU type	LPS or class 2
LED type/model	White light with optional Twinkle or Color Wheel
LED life	40,000 hours
5500K LED	75CRI, 5700lm
4000K LED	82CRI, 5300lm
3000K LED	83CRI, 4650lm
DMX	User addressable (0-255) dimming, Twinkle/Color Wheel control and on/off
Control functionality	Manual, 0-10V dimming, DMX
Operating environment	Indoor / dry
Min. ambient temperature	14°F (-10°C)
Max. ambient temperature	86°F (30°C)
Material	Aluminum
Color	Grey
Size (Static white light only models) LxWxH	278mm x 152mm x 93mm 10.95" x 6.1" x 3.7"
Size (With Color/Twinkle Wheel) LxWxH	278mm x 152mm x 127mm 10.95" x 6.1" x 5.0"

INSTALLATION AND MAINTENANCE LOG

For warranty purposes, a dated record of installation, maintenance, troubleshooting and testing steps taken must be kept in the table below.

DATE OF INSTALLATION: _____

NO.	Date	Maintenance