LiFi-XC Access Point
User Manual

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www.pureLiFi.com

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Abbreviations

AP	- Access Point	**TX**	- Driver
LiFi	- Light Fidelity	**WiFi**	- Wireless Fidelity
PoE	- Power Over Ethernet	**LED**	- Light Emitting Diode
PSU	- Power Supply Unit	**USB**	- Universal Serial Bus
STA	- Station	**WPA2**	- Wi-Fi Protected Access 2
IR	- Infrared	**OS**	- Mac OS

Disposal

Please contact your local authority for disposal guidance or return to pureLiFi for disposal

For Your Safety

- Use only with the included accessories
- Do not remove the housing of the access point
- Do not repair this unit by yourself
- Installation should be carried out by appropriately trained personnel
- Refer servicing to qualifies service personnel
- Ensure that all applicable and recommended safety measures for tools used in installation are taken

LiFi-XC Access Point

Please Read: Important information about the installation of your Access Point and the system warranty.

When installing your LiFi Access Point (AP), the unit should be isolated from any earth or ground-rail to ensure optimal performance. For your convenience, we have provided plastic screws and washers for mounting your AP. Please ensure you use them.

Disregard for the above guidelines could result in potential degradations in performance. Therefore, pureLiFi cannot warrant the system if this installation guidance is not followed.

System Parameters

Access Point

Parameter	Nominal Value	Unit
Supply voltage	27 - 57	VDC
Data interface	Gigabit Ethernet	-
Driver box interface	10-way Microfit 3.0 connector	-
Power input	2-way Microfit 3.0 connector	-
Stand-by power consumption	4	W
Max. active power consumtion	8	W
Remote management	TR-069, SNMP v3	-
Status LED indicator	Tristate - red, orange, green	-
Unit size	88 x 88 x 20	mm
Unit weight	200	g
Operating Temperture	0 -35	°C
Humidity (Non-condensing)	20 - 95	%

TX Driver

Parameter	Nominal Value	Unit
Min lamp voltage	2	VDC
Max lamp voltage	55	VDC
Max DC lamp current	700	mA
AP interface	10-way MicroFit-3.0 connector	-
Lamp connector	3-way push-in	-
Lamp wire cross-section area	0.05 - 1.31	mm^2
Lamp wire gauge	30-16	AWG
Stand-by power consumption	4 (excluding lamp)	W
Max. active power consumption	4.2	W
Unit size	74 x 55 x 32	mm
Unit weight	124	g
Operating Temperture	0 - 35	°C
Humidity (Non-condensing)	20 - 95	%

NOTE: PoE requires as a minimum POE+ standard 802.3at, at 30Watts

Contents

The Benefits of LiFi

LiFi Technology

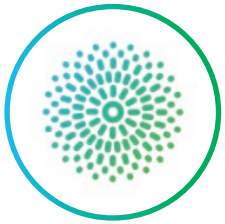
LiFi technology allows LED lights to modulate at a rate exceeding millions of times per second - imperceptible to the human eye but readily detected by a LiFi receiver - enabling the light source to transmit high speed wireless data. Configuring a light source with pureLiFi's 'LiFi' technology creates a highly-localised wireless hotspot for access to the network. The pureLiFi LiFi-XC system offers the ability to deploy a fully networked LiFi solution. LiFi-XC supports multiple access, roaming, complete mobility and ease of use – providing a comparable level of user experience to existing wireless technologies, like Wi-Fi.

Secure

Light can be contained. Light cannot travel through walls, which means a LiFi signal can be secured in a physical space. pureLiFi's technology also enables additional control as data can be directed from one device to another. Users can see where data is going.

No Interference

Radio frequency technology such as Wi-Fi is vulnerable to interference from a wide range of devices such as cordless phones, microwaves and neighbouring Wi-Fi networks. LiFi signals can be defined by the area of illumination, which means interference is much simpler to avoid and even stop altogether. This also means LiFi can be used in RF hostile zones such as hospitals, power plants and aeroplanes.



Data Density

Data density offers a greater user experience as it reduces the need to share the wireless bandwidth with other users. LiFi can achieve approximately 1000 times the data density of Wi-Fi offering more data per square metre. This is an important factor for wireless efficiency.

Location Services

LiFi systems are fully networked, and each LiFi enabled light has it a unique IP address which means advanced geofencing can be deployed simply in a LiFi network.

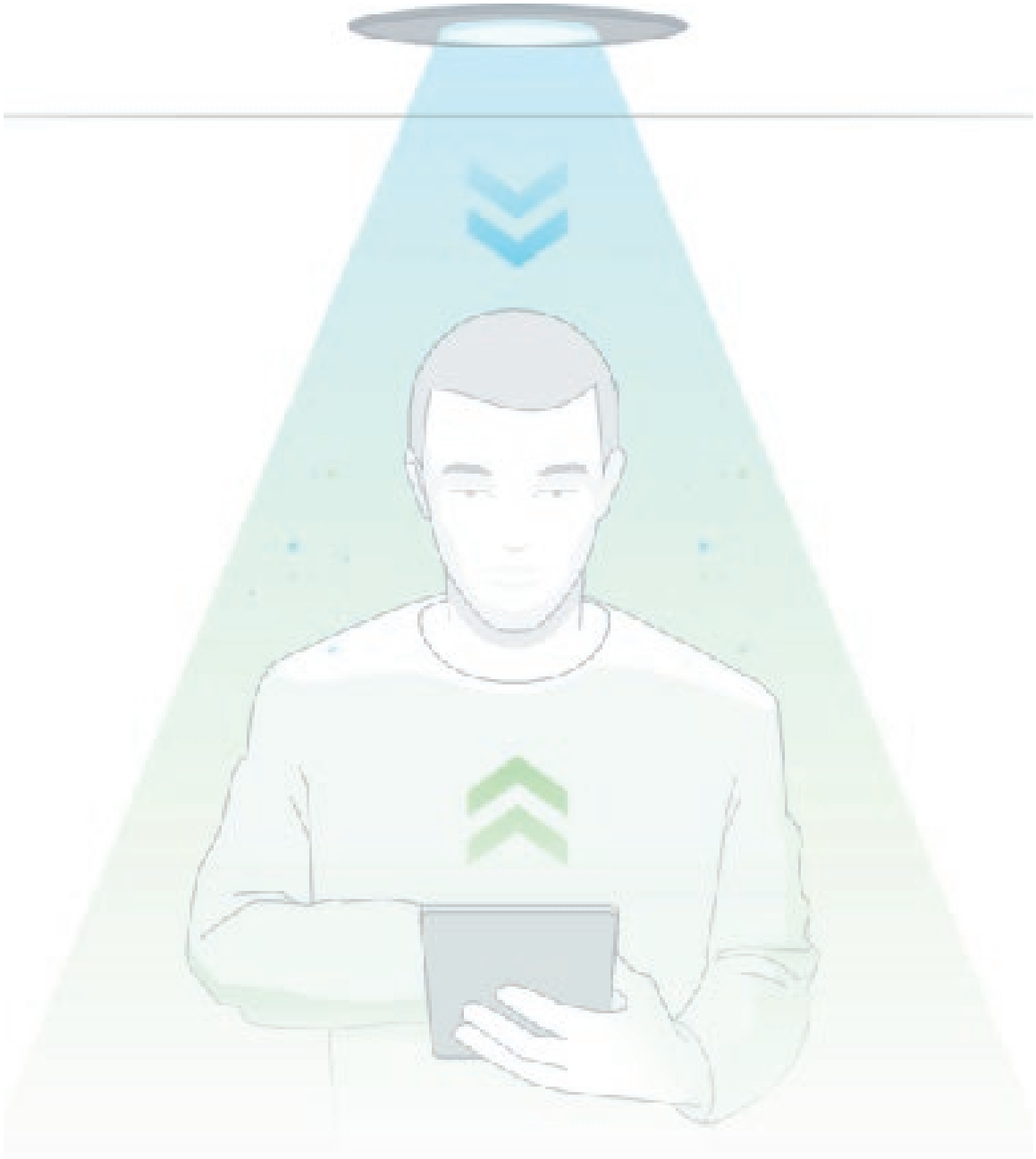
Efficiency

LiFi allows the repurposing of light for communications as it uses the same infrastructure. LED lights are already widely efficient, and LiFi gives them another purpose, connectivity.

Smart Lighting

Any private or public lighting including street lamps can be used to provide LiFi hotspots, and the same communications infrastructure can be used to monitor and control lighting and data.

pureLiFi System: How it works



LiFi Access Point

The Access Point, which can serve several users just as a traditional WiFi router would, is mounted on the ceiling alongside your luminaire.

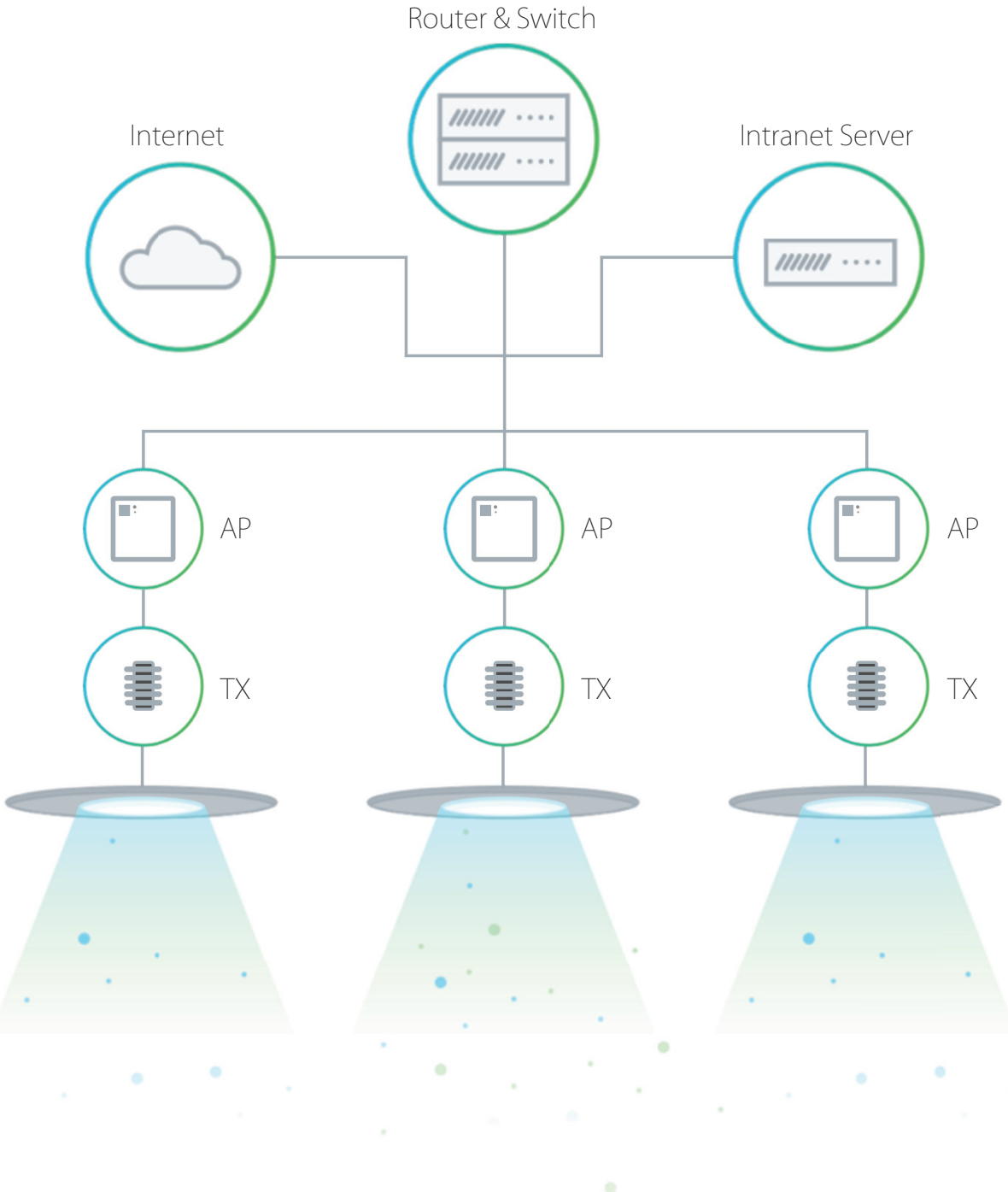
Data Access

The LiFi Station can access your data connection anywhere within the illuminated area.

LiFi Station

The LiFi Station plugs into a standard USB 2.0 port on any supported device and connects to the Access Point, just as a traditional USB cellular dongle would.

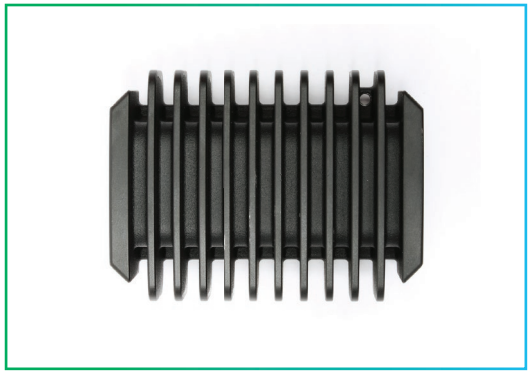
Typical Deployment of the pureLiFi Network



pureLiFi System: Key components

Access Point (AP)

Each LiFi-XC Access Point is capable of serving multiple users simultaneously and allows users to move to an adjacent LiFi-XC AP without the need to manually re-establish connection, leading to a seamless user experience. The LiFi-XC AP also allows the attached LED luminaire to be dimmed using a proprietary control protocol, DALI, 0-10V, and COAP where available via control input.



TX Driver (TX)

The LiFi-XC TX Drivers allow for easy adatability to many "off the shelf" LED luminaires.

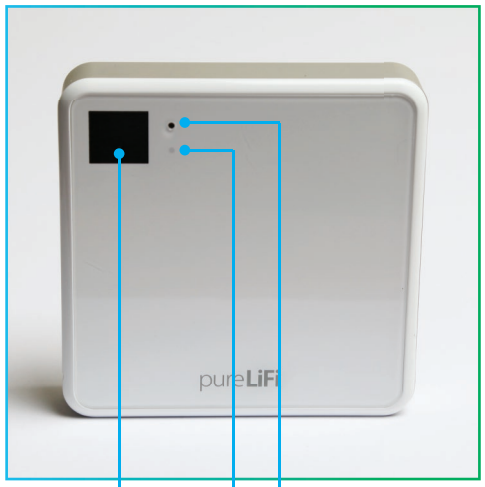
Station (STA)

The LiFi-XC Station (STA) unit is USB powered to enable complete mobility and ease of use. The system simply uses existing operating system tools for scanning and connecting to LiFi-XC APs providing the user with a familiar network configuration and management interface.

Features

- Fully networked LiFi system providing end-to-end IPv4 and IPv6 connectivity
- Full-duplex wireless link providing over 43 Mbps in downlink and uplink
- A single access point (AP) supports up to 8 stations (STAs)
- Capable of working with a range of LED luminaires
- TR-069 remote provisioning and management.
- DALI, 0-10V and CoAP support
- Proprietary protocol for power management/dimming when others unavailable
- Control input for switch or dimming control

pureLiFi System: Get to know the components



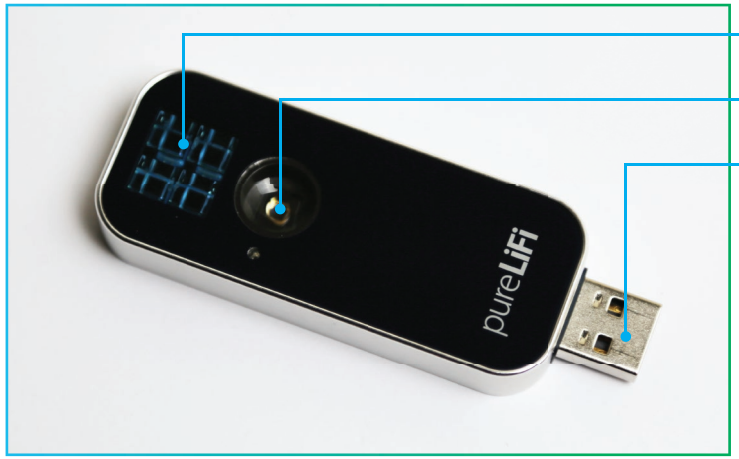
LED Status

Red: Driver loading

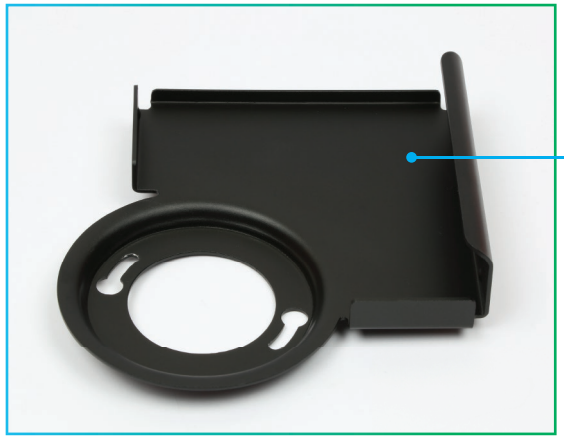
Red (Flashing): Fault

Orange: Standby mode

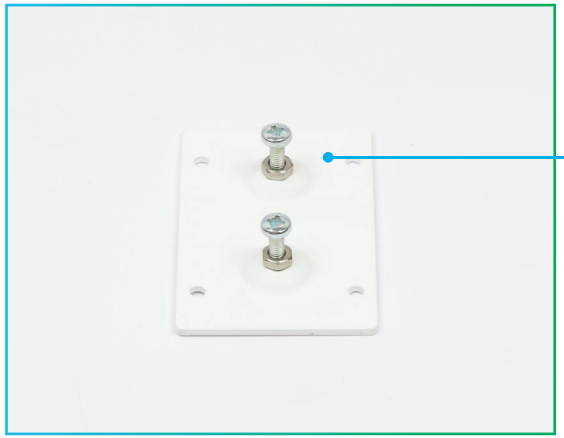
Green: On



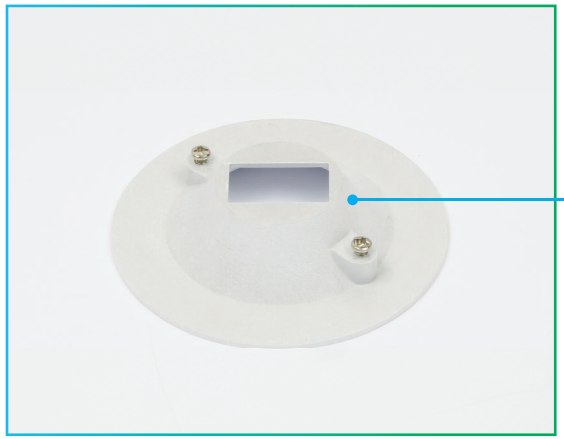
pureLiFi System: Get to know the accessories



AP Tray



Below the Ceiling Mounting Bracket



Funnel

AP to TX Cable

DC Power Supply

Mounting Options:

Above the ceiling

This AP mounting option offers discrete ceiling integration

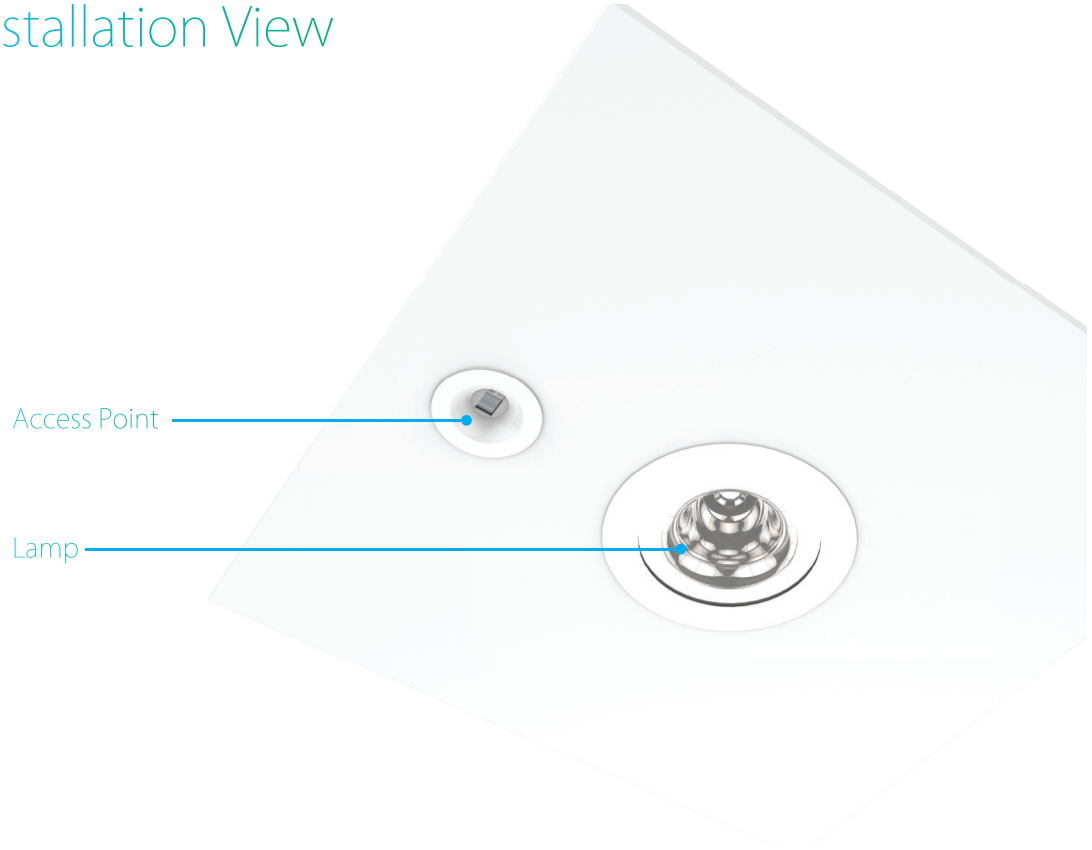
Below the ceiling

This AP mounting option offers a flexible no fuss installation for almost any ceiling type

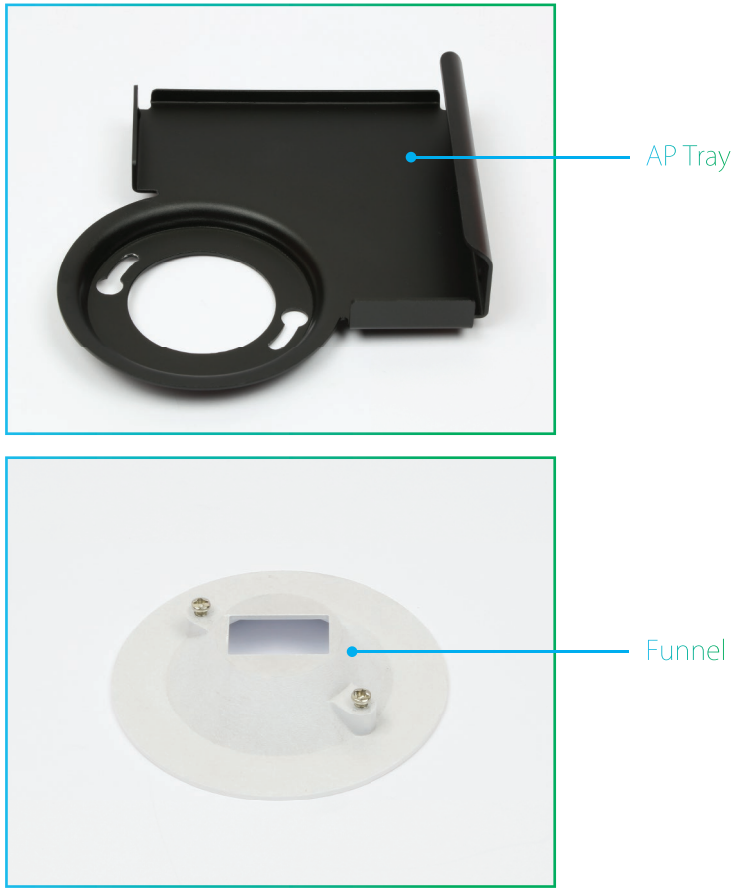
Mounting Option: Above the ceiling

The AP can be installed above the ceiling on either suspended ceiling systems or, when adequate space for installation and electrical and data connections exists, on standard gypsum board ceilings. The hardware required for installing your access point into a ceiling, powered by either PoE or an DC Power Supply Unit, is detailed below.

Installation View



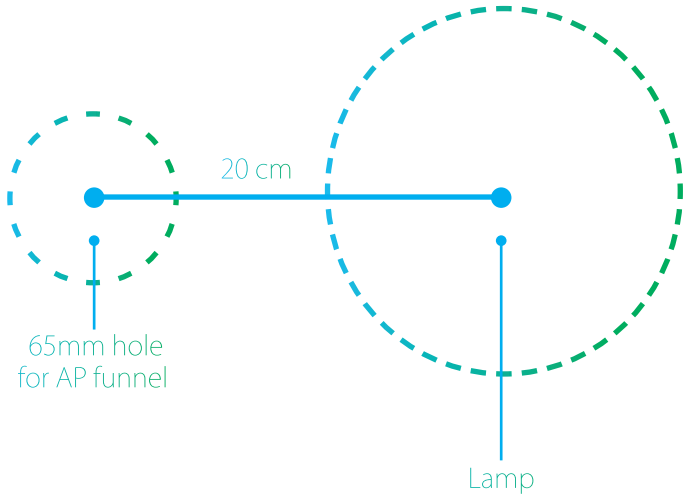
Mounting Parts



Mounting Option: Above the ceiling

Step 1.

Cut a 182 mm diameter hole in the ceiling tile.
Now cut a 65 mm diameter hole that is a minimum of 20 cm from the previous in the ceiling tile for the AP funnel.



Step 2.

Place the AP tray from above the ceiling tile into the hole you have made for the AP funnel. Now place the AP funnel from below and secure by twisting anti clockwise. Now from above the ceiling tile screw the two screws in place to secure the funnel.

Step 3.

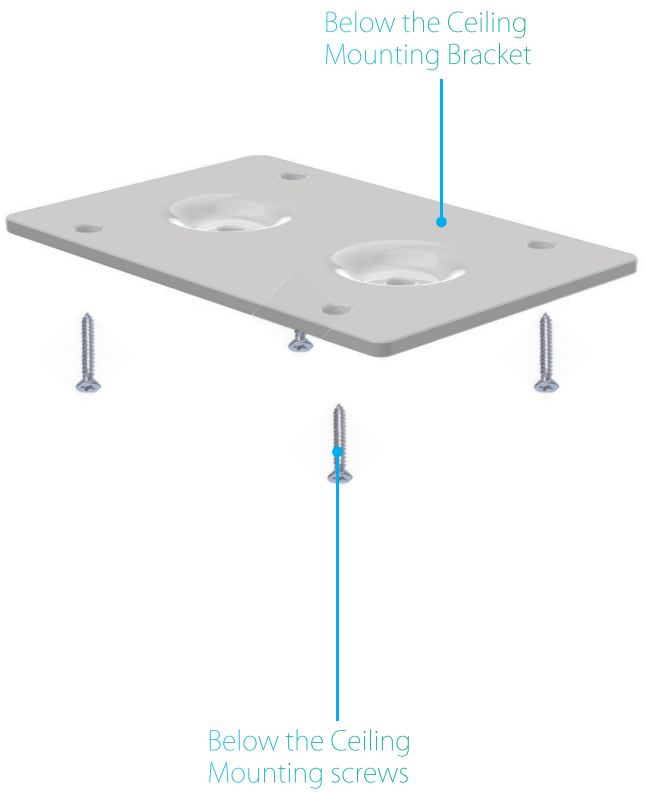
Place the AP face down in the AP tray with the receiver facing through the hole in.

Step 4.

Continue to install the lamp & TX driver as shown on page 17

Mounting Option: Below the ceiling

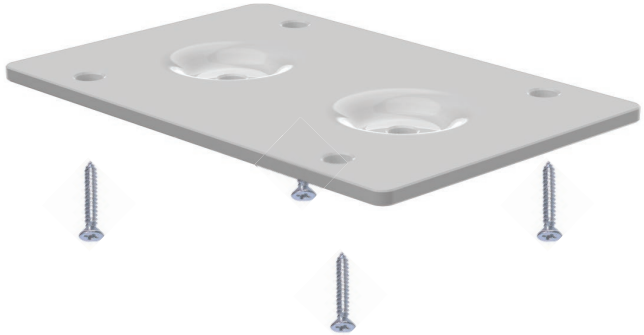
Mounting Parts



Mounting Option: Below the ceiling

Step 1.

Screw the mounting bracket into the desired location aproximateley 20 cm from the centre of the lamp



Step 2.

Place the holes on the back of the AP into the coresponding screw on the AP bracket.

Step 3.

Slide the AP to secure in place.

Step 4.

If you would like to run cabling abole the ceiling, cut a 120 mm x 20 mm hole for cables.

Connecting the Access Point

Now that you have mounted your AP, you are ready to connect the AP to the lamp and the internet.
It is important that you complete these steps before you connect your AP to power.

Connecting the Access Point

Step One: Connect the lamp to the TX Driver

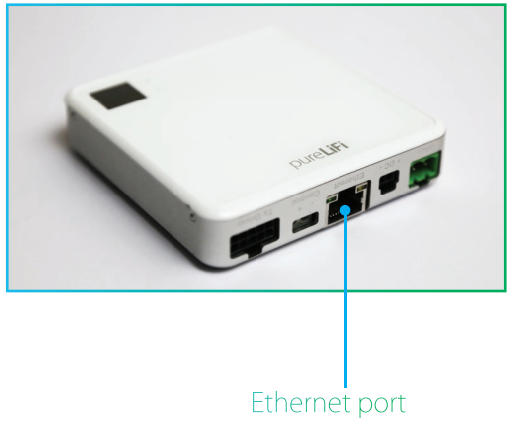
Connect cable from your chosen lamp to the TX Driver by pressing down on the orange cable connectors.

Step Two: Connect the TX Driver to the AP

Connect the TX Driver to the Access Point using the AP to TX cable.

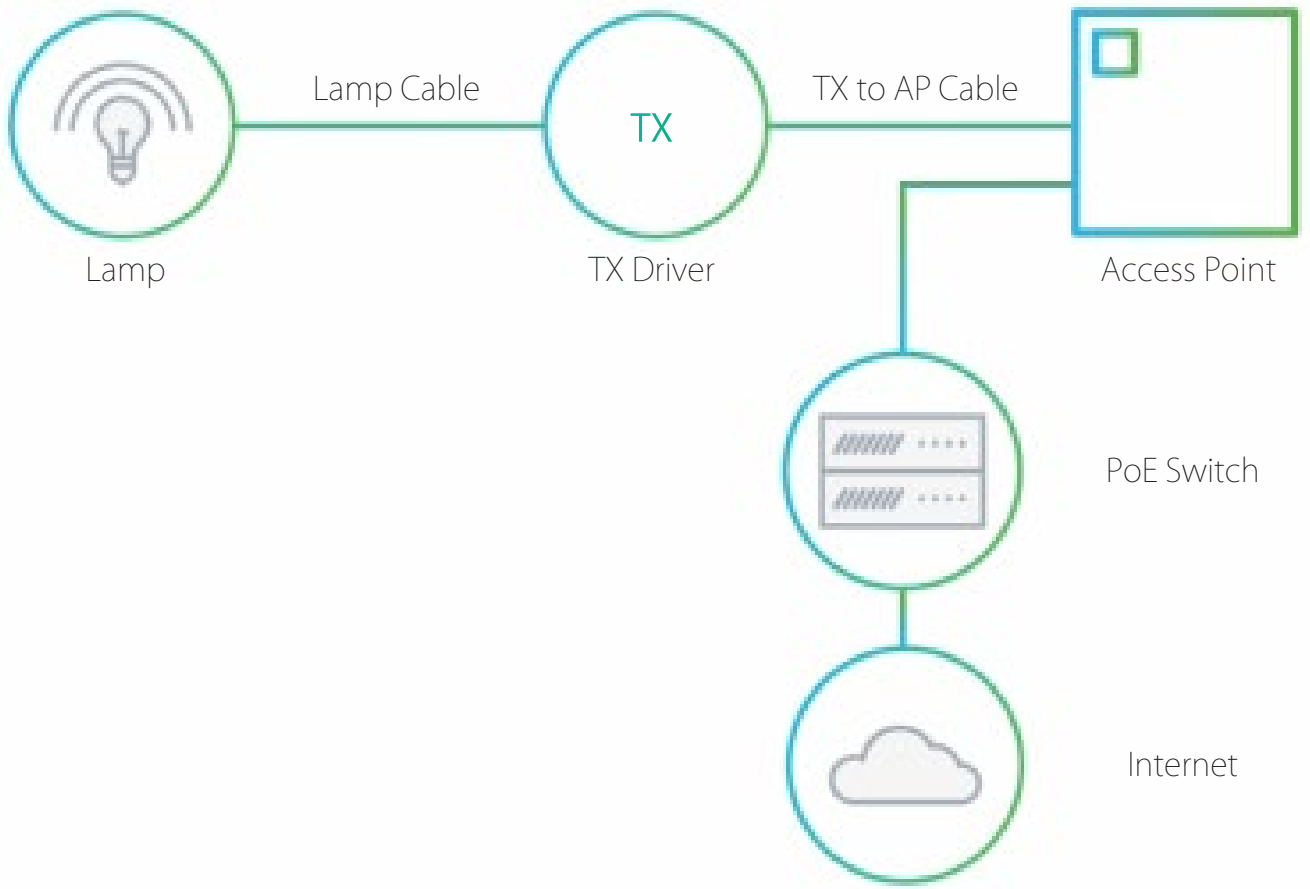
Step Three: Connect AP the Ethernet cable

Connect the Acceses Point to the internet using the Ethernet port. If you are using PoE for power, only connect power to your PoE switch after you have connected the Ethernet cable to the AP.



Install

The below diagrar



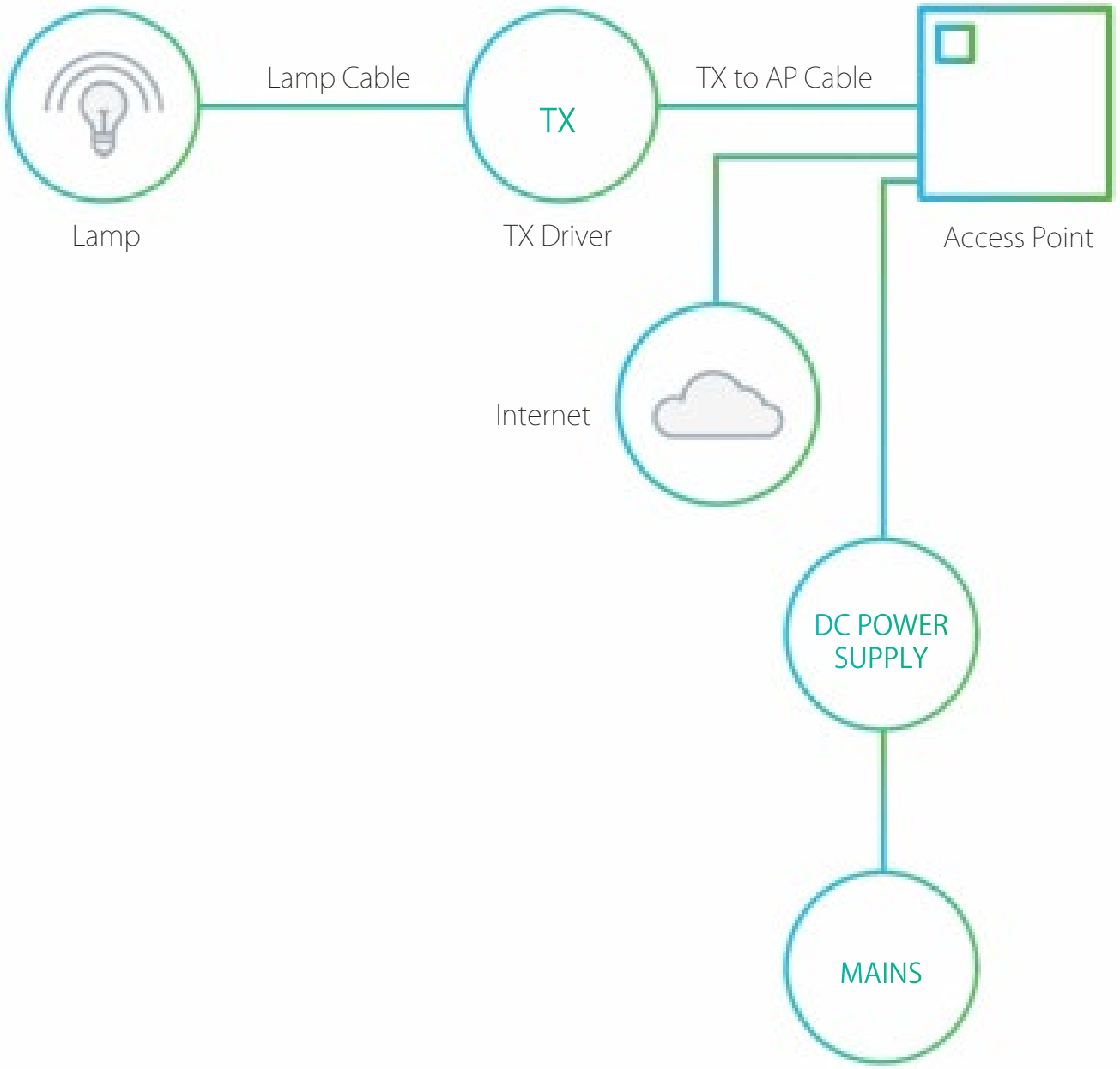
Installation

1. Connect the lamp to the TX Driver
2. Connect the TX Driver to the AP using the AP to TX cable
3. Connect the Ethernet cable from the AP to the PoE switch (Do not power on PoE switch)
4. Connect the PoE switch to the internet
5. Connect the PoE switch to power
6. There may be a small delay in powering up using PoE

NOTE: The lamp only lights up after the AP has been booted

Installa

The below diagram sh
Ensure that you plug



Installation Or

1. Connect lamp to th
2. Connect the TX Driv
3. Connect the Ethern
4. Connect AP to pow
5. Connect DC power

Congratulations!

You are now ready to use LiFi.

Connect your LiFi-XC station to your laptop or tablet and enjoy highspeed, secure, wireless communications using the light spectrum.

AP Settings

The default settings for the AP are:

SSID: LiFi-XC
Password: (none)

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Additional Support

For any additional support, please visit or email us at:

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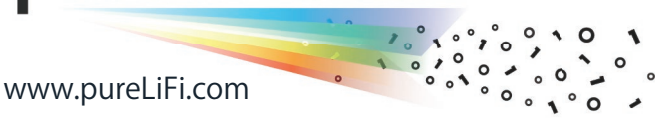
Light becomes data

pureLiFi



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