

# Ambiance

Tiny USB-C powered - wired & Bluetooth - dynamic lighting system



### **Main features**

- USB type C powered
- Bluetooth connectivity
- Very low latency
- Up-to 200 LEDs or 3A
- Rubber paddings
- Small dimensions (58 x 3 x 0.8 cm)

# Applications

- Smart TV Ambilight
- 5V RGB LED strips (WS2812B, SK6812)
- PC/Laptop lighting setup
- USB LED strip controller

Datasheet - Active product

# Description

Ambiance is a tiny lighting system device which allows you to drive RGB LED strips from a computer (PC / Apple / Linux & Smart TV) over Bluetooth or USB.

Ambiance is embedding a 3 pins header to be hooked up to a 5V LED strip and is capable of driving up to 200 LEDs and source current up to 3A.

Ambiance can be plugged in to an Android Smart TV and use a third party TV app so it becomes an Ambilight alike TV.

Based on the Adalight protocol and combined with Hyperion or Prismatik, Ambiance lets you to easily create smart and controllable lighting atmospheres.

Unleash the power of RGB LEDs and enhance your preferred video-game or movie immersion with Ambiance.

Product ref code	Temperature [°C]	Product Size [mm]
AMBAXXXX	-20 tp +70	57.6 x 32.0 x 8.0

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### 1 Description

#### **1.1 Ambiance device**

Ambiance has a USB type C input so it can be powered up using any wall adapter and/or to be plugged in to a computer. The output is a three pins header (GND / SIG / 5V) to be connected/soldered to an LED strip accordingly.



#### 1.2 Cable

A three pins ribbon cable is also provided to ease the connection between the Ambiance device and the LED strip. Pay attention to the pinout below.



### 1.3 Assembly



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#### Attaching Ambiance to the LED strip 1.4

- 1. take led strip, cut the led strip light

3. flip led connector cover over

5. close the connector cover

Pay attention to the position of the black triangle on the LED strip to attach the connector to the correct end of the strip.







2. peel the led strip light 3CM off



4. put the led strip light into the led connector

### 2 Specifications

#### 2.1 Absolute maximum ratings

Stresses above those listed as "absolute maximum ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device under these conditions is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.

Symbol	Parameter	Maximum Value	Unit
Vusb	USB Supply Voltage	-0.3 to 6.0	V
lusb	USB Supply Current	3.0	А
BTpwr	Bluetooth Transmitting Power	4	dB
BTrate	Bluetooth Transmission rate (SPP)	40′000	bytes/s
BTbaud	Bluetooth baudrate	1M	bauds
ТОР	Operating Temperature	-20 to 70	°C
TSTG	Storage Temperature	-40 to 80	°C

This device is sensitive to electrostatic discharge (ESD), improper handling can cause permanent damage to the part.



#### 2.2 Electrical characteristics

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
Vusb	USB Supply Voltage		4.5	5.0	5.5	V
lusb	USB Supply Current		0	-	3.0	А
DatOut	Data voltage output		0	-	3.3	V
5Vout	5V power rail ripple	100 LEDs ON in fire mode	50	200	300	mV
Idd	Nominal current consumption	LEDs OFF / BT ON	27	39	42	mA
BTsens	Bluetooth receiving sensitivity		-	-91	-	dBm
BTpwr	Bluetooth Transmitting power		-	4	-	dB
BTrng	Bluetooth distance	In open field	10	20	30	m
Lat	PC to LEDs latency	100 LEDs / via BT	15	18	30	ms

### 2.3 Thermal & physical characteristics

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
Тор	Operating Temperature	50% Relative humidity	-20	-	+70	°C
Tstg	Storage Temperature		-40	-	+80	°C
W	Device Weight		-	15	-	g

### **3** Use case scenarios

#### 3.1 Ambiance USB tethered

In this mode, Ambiance is connected to a computer and the data flows through USB. Hence the computer provides both the power and the data to drive the LED strip.



#### 3.2 Ambiance Bluetooth paired

In this mode, Ambiance is paired to a computer via Bluetooth. Any kind of USB-C wall adapter/power bank can be used to power supply the device. The data used to drive the LED strip flow through Bluetooth. Thus the LED strip can be placed anywhere 10m around the computer while not being physically attached to the computer.



### 4 Setting up Ambiance

#### 4.1 Setting up Ambiance via Bluetooth (Windows) [5-10min]

In this mode, your computer can send the display data to Ambiance and the LED strip over Bluetooth. Although Ambiance still needs to be connected to some power source via USB-C it is not required to be physically tied to the computer Here below is the procedure to set this up accordingly:

**Step 1:** Plug in Ambiance to an USB power source (wall adapter, power bank,...).

**Step 2:** Open up Windows Settings by clicking on the gear icon (on windows 8, 10 & 11) Then look for "**Bluetooth and devices**" or "**Devices**" depending on which OS you are working with (**1** in the figure below). Now click on "**Add Bluetooth or other devices**" (Windows 10) or "**Add device**" (Windows 11) (**2** in the figure below).

Rechercher un paramètre     Q       Système     Image: Constraint of the system of th	 Ambiance * Connecté texture 75t Couplé Connecter texture 75t Couplage	 Ajouter l'appareil
Applications		
Comptes Heure et langue	Bluetooth Détectable sous le nom « SLS-PAUL »	Activé 🦲
<ul> <li>Jeux</li> <li>Accessibilité</li> </ul>	Appareils     Souris, clavier, stylet, audio, écrans et stations d'accueil, autres appareils	2 Ajouter un appareil >
Confidentialité et sécurité	Préférences et résolution des problèmes	

**Step 3:** A new window will pop up showing options to add a new device. Click on **"Bluetooth"**. After that, wait for a little while then **Ambiance** should show up in the device list if thoroughly power supplied as per both pictures below:

Ajouter un appareil X	Ajouter un appareil X
Ajouter un appareil	Ajouter un appareil
Choisissez le type d'appareil que vous voulez ajouter.	Vérifiez que votre appareil est allumé et qu'il peut être détecté. Sélectionnez un appareil ci-dessous pour vous connecter.
8 Bluetooth Souris, claviers, stylos, périphériques audio, contrôleurs, etc.	Ambiance
Écran ou station d'accueil sans fil Moniteurs sans fil, téléviseurs ou PC qui utilisent Miracast ou des docks sans fil	G Ambiance BLE
+ Tout le reste Manettes Xbox avec adaptateur sans fil Xbox, DLNA, et autres appareils	
Annuler	Annuler

**Step 3 (bis):** In the case no Ambiance device shows up into the list. Make sure the **Bluetooth Devices Discovery** option is set to **Advanced**.

To do so, open up the **Windows settings** then click on **Bluetooth & Devices**, then click on **View more devices**.

Rechercher un paramètre     Q <ul> <li>Accueil</li> <li>Système</li> <li>Bluetooth et appareils</li> </ul>	 Ambiance Couplé	 PLT BB PRO 2 Non connecté Connecter	 MX Anywhere 25 • Connecté 90% 🐨	Ajouter l'appareil	
Réseau et Internet					
Applications	م Bluetooth			•••••4	
Comptes	Détectable sous le nom « SLS	-PAUL »		Active	
<ul> <li>Heure et langue</li> <li>Jeux</li> </ul>	Appareils Souris, clavier, stylet, audio, é	crans et stations d'accueil, autres appareils		Ajouter un appareil	
<ul> <li>Accessibilité</li> <li>Confidentialité et sécurité</li> </ul>	Imprimantes et scanners     Préférences et résolution des	problèmes			
Ø Windows Update	Mobile connecté Accéder instantanément à vo	tre appareil mobile à partir de votre PC			
	ලි <sup>Caméras</sup>			· · · · · · · · · · · · · · · · · · ·	

Scroll down to the **Bluetooth Devices Discovery** parameter and set it to **Advanced**.

Rechercher un paramètre Q	USB 2.0 Hub	
n Accueil	Paramètres de périphérique	
<ul> <li>Bluetooth et appareils</li> <li>Réseau et Internet</li> </ul>	Afficher les notifications pour se connecter à l'aide de Couplage rapide Se connecter rapidement aux appareils Bluetooth pris en charge quand ils sont proches et en mode jumélage Active	
Personnalisation	Télécharger via des connexions limitées Les logiciels d'appareil (pilotes, informations, et applications) pour les nouveaux appareils sont téléchargés lorsque vous utilisez des connexions Internet Désad limitées. Des trais de données peuvent s'appliquer	tivé 💽
Comptes	Par de Pa	efaut :é
🔊 Heure et langue	les types d'appareils.	
<ul> <li>★ Accessibilité</li> <li>♥ Confidentialité et sécurité</li> </ul>	우리카페만만동 associes (이) Son	
Windows Update	🖵 Écran	

That's it, you can now return to Step 3 and pair your Bluetooth device.

**Step 4:** In the Windows search bar, type in **"Device manager"** then click on it. A new window will show up as per the picture below. Scroll down to **"Ports"** and two more Bluetooth COM ports are now visible. Take note of both COM port names. In this example both Bluetooth COM ports are named: **COM3** & **COM4**.

You can now move on to **chapter 5** or **6** depending on what software you want to use.



#### 4.2 Setting up Ambiance via USB (Windows) [5-10min]

If you want to use Ambiance while being connected to a computer via USB instead, simply plug-in the device to any PC, then open up the device manager.

To do so, in the windows search bar, type in **"Device manager"** then click on it. A new window will show up as per the picture below. Scroll down to **"Ports"** and two more Bluetooth COM ports are now visible. Take a note of the COM port name. In this case the USB peripheral COM port is named: **COM21**.

You can now move on to **chapter 5** or **6** depending on what software you want to use.

🖁 G	estic	onnaire de périphériques		×
Fichi	er	Action Affichage ?		
-				
>		Moniteurs		
>	4	Objets de traitement audio (APO)		
>	_	Ordinateur		
>	-10	Périphérique d'acquisition d'images		
>	翁	Périphériques biométriques		
>	1	Périphériques de sécurité		
>	-	Périphériques d'interface utilisateur		
>		Périphériques logiciels		
>		l Périphériques système		
>	ÿ	Périphériques Universal Serial Bus		
~		Ports (COM et LPT)		
		🛱 Périphérique série USB (COM21)		- 1
>		Processeurs		- 1
>		Souris et autres périphériques de pointage		- 1
>	h	Surface System Management		

### 5 Prismatik

### 5.1 Download/Install Prismatik (Psieg version)

Many thanks to Psieg and team on Github for continuously improving updated versions of Prismatik.

Here below you can find the different installation packages:

- Windows users: Prismatik for Windows x64
- Apple users: Prismatik for Apple
- Linux users: Prismatik for Linux

Then launch the package and follow the setup instructions to install Prismatik on your computer.

#### 5.2 Setting up Prismatik

**Step 1:** Once Prismatik is installed a new icon will be displayed in the taskbar. Right-click on it, then hit **"Settings"**.



**Step 2:** A new window will open up. Click on **Device**, then "**Run configuration Wizard**. **Step 3:** A new pop up appears, make sure the checkboxes are as follow. Click Next.

						×
← Wizard		← Wizard				
Lightpacks d	liscovery	Select connected devi	ce			
	No Lightpacks connected please connect Lightpack or setup another device Continue setting up the Lightpacks Setup another device		<ul> <li>Adalight (Serial, 511 LEDs)</li> <li>Ardulight (Serial, 255 LEDs)</li> <li>Virtual LED device</li> <li>DRGB (UDP, 490 LEDs)</li> <li>DNRGB (UDP, 1500 LEDs)</li> <li>WARLS (UDP, 255 LEDs)</li> </ul>			
	Next Cancel			Next	Ca	ncel

**Step 4:** In "**Serial port**", type in the corresponding serial port from chapter 4. If configuring the device via Bluetooth. Try one of the two COM ports. If no light is displayed by the end of the configuration wizard. Go through the Wizard again with the second COM port value. The "**Baud rate**" is set to 1000000 (1 million) ['1' and six '0'].

24		—		×
← Wizard				
Device configuration				
	Serial port			
	COM3		1	
	Baud rate			
	1000000 ~		2	
	Make sure to match your Color format		-	
	RGB ~			
		Next	Can	cel

**Step 5:** Pick the profile you want to edit. At this stage you can either edit an existing one or create a new one by clicking on the "+" icon.

← Wizard			
Choose profile			
	Drofile to modify:		
	5-PURPLE V		
		Next	Cancel

**Step 6:** Now comes the LED configuration around your screen.

Set the number of LEDs your strip contains (1). Then it apply (2).

Depending on the number of LEDs you set, new numbered boxes will show up. Each box represents the area that one LED of your strip will take the color from and the position of the LED on your strip.

You can either move the boxes manually around the display as you want or use the pattern options above.

Overall it is highly recommended to play around these options to know how to handle the software. Do not forget to hit **Apply** after every pattern change to update the boxes on-screen accordingly.



Once you are happy with the settings, click Next.

#### **Step 6:** Leave everything as default or set both fields with the values below: **Single LED current:** 40 mAmps **Power Supply current limit:** 5 Amps

	—		×
← Wizard			
Device configuration			
If your LED power supply cannot provide enough current AND y requirements (check datasheet if needed) you can limit the curre overall brightness on current hungry scenes.	you know you ent here. This	ur LED's curr s will reduce	ent the
Leave Power Supply current limit at "0" to disable limiting.			
Warning: Power Supply current limit value might not match e adjust as necessary.	xactly your p	ower supply	SO
Single LED current 40 🔷 mA	mps		
Power Supply current limit 5,00 🗦 Am	ips		
	Next	Cance	el

**Step 7:** The last screen is about to set the white balance according to your needs. Unless you need to tweak this option, simply click "Next" to complete the configuration.



In the event nothing happens on the LED strip side, please thoroughly check the **Troubleshooting section** .

### 6 Hyperion

#### 6.1 Download/Install Hyperion

Many thanks to Hyperion and team on Github for continuously improving updated versions of Hyperion. Here below you can find the different installation packages:

- Windows users: Hyperion for Windows x64
- Apple users: Hyperion for Apple
- Linux users: Hyperion for Linux

Now launch the package and follow the setup instructions to install Hyperion on your computer. Then follow either 4.1 or 4.2 to setup Ambiance via Bluetooth or USB. Finally go back here to complete the Hyperion configuration.

#### 6.2 Enabling Hyperion Expert settings

Click on the **wrench** icon in the top right corner of the screen, then on **Settings level** to switch to **expert mode**.





### 6.3 Configuring Ambiance & Hyperion

	<u>N</u>						. ⊊	<b>%</b> -	se ≠	ር -	
🍘 Dashboard	👻 LED Output										
<b>ℱ</b> General											
🌣 LED Instances	LEDS, ureau										
🔅 LED Output	LED Corroller LED Layou										
Sources	Hyperion supports a lot of	controllers to transmit data to your tar	get device. Selec	t a LED controller out	of the sorted I	ist and co	nfigure it. We	e have chos	en the best	default set	tings
: Effects	for each device.										
🖾 Image Processing											
Capturing Hardware	Controller type: adalight										
🛔 Network Services											
🗢 Remote Control	Specific Settings										
🌣 Effects Configurator	Output path	COM8 (0x0 0x0) - Microsoft	÷		4						
i Support	Streaming protocol	Adalight - Standard	÷		5						
System <	Baudrate	1000000	¢		6						
	Delay after connect	0	≎ ms								
	Latch time	1	🗧 ms								
	Refresh time	1	🗘 ms								
					_						
	Hardware LED count	120	<u></u>								
	RGB byte order	RGB	÷								

Either both in Bluetooth or USB mode:

- 1: Click on LED Instances
- 2: Click on LED Output
- 3: Set **Controller type** to Adalight
- 4: Pick the COM port associated to the Ambiance device
- 5: Select Adalight Standard
- 6: Set the Baudrate to 1000000 (1 million)
- 7: Enter the number of LEDs being used in your setup

### 6.4 Configuring LEDs

<u>H Y P E R I 📮</u>	N			• * -	"/ + ,	ር -	
🚯 Dashboard	👻 LED Output						
LED Instances	LED <b>∉</b> Bureau						
🔅 LED Output	LED Controller	LED Layout					
Sources Effects	You also need an LED layout, which reflects your LED positions. The classic layout is the usually used TV frame, but we also support LED matrix (LED walls) creation. The view on this layout is ALWAYS from the FRONT of your TV.						
Image Processing	🖵 Classic Layout	(LED Frame)		Q LED Layout Preview		2	
<ul> <li>Capturing Hardware</li> <li>A Network Services</li> </ul>	Тор	40	💭 LEDs	Created from: Classic Layout (LED Frame) Total LEDs: 120			
🗢 Remote Control	Bottom	0	C LEDs	Max. power consumption: 7.9 A			
C Effects Configurator	Left	40	C LEDs	This is your first LED (input position) This visualizes the data direction (second/t	hird LED)		
i Support	Right	40	C LEDs				
System <	Gap length	0	C LEDs				
	gap position	0					
	Input position	80	0				
	Reverse direction	~					
	📽 Advanced Se	ettings					
			Save Layout				

To configure your LED frame as needed:

- 1: Click on **LED Instances**
- 2: Click on LED Output
- 3: Click on the **LED layout** and enter the number of LEDs for each corresponding screen edge.

The complete **Hyperion** Project documentation can be found here: https://docs.hyperion-project.org/

### 7 Troubleshooting

#### 7.1 The LED strip does not turn ON

- Make sure the LED strip is correctly connected to the proper corresponding pins. Ambiance **GND**, **SIG & 5V** must be tied to the LED strip **GND**, **DIN & 5V** respectively.
- Bluetooth users: Go through the configuration wizard again using the **second Bluetooth COM port** that is displayed in the Device Manager. (see step 4)

#### 7.2 The LED strip suddenly stops working or hang

If the LED strip unexpectedly stops working while connected over Bluetooth, make sure your Bluetooth Adapter power saving options are deactivated in the device manager.



### 8 Revision history

Date	Description	Rev number
January 2023	First release	V1.0
October 2023	Hyperion setup added	V1.1
October 2023	Troubleshooting section updated	V1.2
October 2023	Description text block completed	V1.3

## 9 Appendix

#### IMPORTANT NOTICE – PLEASE READ CAREFULLY

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