GENERAL ISSUES CONCERNING LED STRIPS

Frequently asked questions (FAQ)

What is the maximum power a controller can bear?

It depends.

Each controller model has power limitations connected with the amps it can bear per channel.

For example, in the case of the controllers found in the JISO ILUMINACIÓN catalogue (CONTROL-V10, CONTROL-V-20 and CONTROL-V31), taking into account a 24V operation, the maximum power per channel will be that resulting from multiplying the 24Vdc voltage by the amps that each channel can bear. That is:

CONTROL-V10 (1channel and 8A/channel) → Pmáx. = 24x8 = 192W/channel

CONTROL-V20 (2channels and 8A/channel) → Pmáx. = 24x8 = 192W/channel

CONTROL-V31 (4channels and 5A/channel) → Pmáx. = 24x5 = 120W/channel

It must be taken into account that both the CONTROL-V20 and the CONTROL-V31 are designed for double colour and RGB/RGBW LED strips respectively.

In addition, it must be taken into account that these strips have several internal circuits, depending on the number of colours of each, so that each circuit shares the "+" cable and has the negative independent (WW or CW in double colour and R, G, B or R, G, B, W in RGB/RGBW). Therefore, the total power of the strip is the sum of the maximum powers of each circuit, that is:

- Double colour LED strip: 90019-249TW of 19.2W/m, each circuit consumes 9.6W/m.
- R/G/B LED Strip: 90014-249R of 14.4W/m, each circuit consumes 4.8W/m.
- R/G/B/W LED Strip: 90019-249WW or NW of 19.2W/m, each circuit consumes 4.8W/m

This means, for example, that a CONTROL-V20 can bear a load of 10m + 10m of a 90019-249TW LED strip. 10m + 10m has been indicated instead of 20m since it should be clear that JISO ILUMINACIÓN NEVER recommends adding more than 10m of continuous LED strip. That is, two LED strips of 10m, four LED strips of 5m, or any other combination that consumes, in total, 192W/channel but which has no load of more than 10m continuously (e.g. 11m, 12m, 15m,...) may be added, for example.

Is it possible to install an IP 20 LED strip with a length greater than 10m?

NO.

JISO ILUMINACIÓN never recommends adding continuous LED strips of more than 10m in length. There are many design options that can suit this type of situation without the need to exceed this limit. If this is your situation, please consult us in order to look at the options.

This restriction is for two reasons:

1. The voltage drop and consequent loss of brightness in the final sections of the strip, which are more pronounced when this length is exceeded.
2. The increase of current in the circuit and as a consequence increase of temperature in the PCB that can end up damaging the first strip sections.

Is it possible to install an IP 65 LED strip with a length greater than 10m?

NO.

In fact, in this type of LED strip the restriction is greater since JISO ILUMINACIÓN can, at most, supply IP65 LED strips, in rolls or cut, of up to 5m.

This is because we would not be able to guarantee the condition of IP 65 when splicing more than 5m.

If the client, of their own accord, decides to do so, they should bear in mind that JISO ILUMINACIÓN is not responsible for the loss of the degree of IP 65 protection after ignoring our advice and manipulating the product.

How does one install a signal amplifier in order to be able to repeat the commands between remote and controller?

JISO ILUMINACIÓN has introduced a change to its products that allows the use of controllers independently without the need for amplifiers, so that the union between controllers, instead of being done by means of wiring, is done through the remote control zone to which the controllers are connected, that is, for two separate sections of strip to be dimmed at the same time, you just need to pair each of the two controllers in the same zone. Moreover, in each zone there is NO limit to the number of controllers that can be connected as long as they are within range of the remote control.

In an installation of LED strips which are dim adjusted by way of controllers and remote control, how many controllers do I need to install?

The number of controllers depends on the type of installation, the zones to be determined, the installed power, location of the power points, etc. That is to say, it is not possible to determine a fixed number of controllers without having information about the installation. JISO ILUMINACIÓN therefore recommends that our clients contact us in order to determine their needs before placing the material order.

JISO ILUMINACIÓN always recommends good initial planning in order to avoid problems during and after the installation. For this good planning you need a good initial data collection regarding the installation and a good knowledge of the technical conditions regarding LED strip installations.

Below we provide a list of initial data that it would be advisable to know before starting with the planning of any installation of LED strips.

1. Diagram of the premises with dimensions.
2. Power of the LED strip (4.8W/m, 9.6W/m, 14.4W/m, etc.).
3. Type of LED strip (Single colour, RGB, RGBW, TW, IP 20, IP65).
4. If IP 65, why? (If IP 65 is not necessary, IP 20 should be recommended).
5. What power supply does it need, IP 20 or IP 65?
6. Distance > 3m between power supply and strip. Location of power outlets.
7. Profile with/without diffuser (corner, surface, etc.) or plate. Always Aluminum.
8. Is some kind of dim adjustment necessary e.g. PUSH, DALI, 1-10V, RF, etc.?

(If it is controlled by means of RF remote control, you need to know if there are several zones and how many sections are in each zone).

9. Hours of continuous operation of the LED strips (never more than 14h/day).

Is it possible to use the TCCONTROLLER-03 connected to my home Wi-Fi network?

YES.

There are two ways to control this device using the "easylighting" app, either individually or in an installation with several controllers in which you can differentiate between up to 8 zones, working in this case as an 8-zone RF remote control but via WIFI signal.

To control a single TCCONTROLLER-03 individually, you should do the following:

1. Install the power supply, controller and LED strip set.
2. Download the "easylighting" application from the App Store (iOS) or the Play Store (Android).
3. Feed power to the set referred to in point 1. The TCCONTROLLER-03 will generate its own Wi-Fi network with the name "EasyLighting_2..." and a number.
4. Open mobile settings and search in Wi-Fi networks for the controller network.
5. Connect to the NETWORK for which you need to enter the Password 0123456789. Once this is done, the mobile and the controller will be connected via Wi-Fi.
6. Open the APP and open Room.
7. Select a room and press "setting" until the colour wheel appears.
8. Press the "Learning Key" button on the controller and, within 5 seconds, press down in the centre of the colour wheel and move it. Once it has been properly matched, it will begin to change the colour.

Once this is done, if we want to add the controller to the domestic Wi-Fi network we need to do the following, within the application:

1. Go to "setting" and press "Connect Wi-Fi LED controller to your home network".
2. If a window pops up saying "Is your mobile phone is already connected to the WIFI controller?" press "YES".
3. Search for the home network and press it. Enter the password too, if there is one, and, if you have done it correctly, the message "configured successfully! Connect smartphone to router you want to connect!" will pop up.
4. Press OK in that message and then check to see if the mobile phone is connected to the network in which we have added the controller. If the mobile phone and the controller are connected to the same network, everything will work correctly but if that is not the case, it will not work.

To add more controllers to the NETWORK repeat each step from the beginning (individual and add to home network) for each controller that you want to connect.

Why does my remote control not move the LED strips?

The MANDO32 universal remote control has to be configured before use. The steps to follow for this configuration can be seen in the instruction manual that is supplied with the device as well as in the examples that can be found in our frequently asked questions.

Two simple steps are performed, the first to configure each zone with the type of LED to be regulated and the second to match the controllers connected in the zone selected.

Is it possible to control different zones that have different types of strips (single colour, double colour, RGB/RGBW...) with the same remote control?

YES.

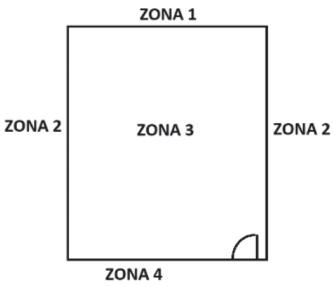
JISO ILUMINACIÓN has a universal remote control (MANDO32) that allows you to determine and programme 4 independent zones either with the same type of dim adjustment control or with different types of dim adjustment. This is done with the universal remote control and with three different types of controllers, according to the type of strip connected. These are the CONTROL-V10, CONTROL-V20 and CONTROL-V31.

Here is a practical example of what may be done with this type of remote control and controllers:

PRACTICAL EXAMPLE:

In a commercial premises, rectangular in shape, we have four defined zones:

Zone 1: Displays (single colour LED strips)
Zone 2: Side walls (tuneable white LED strips - TW)
Zone 3: Decorative elements on the wall (RGB LED strips)
Zone 4: Show-window (single colour LED strips)

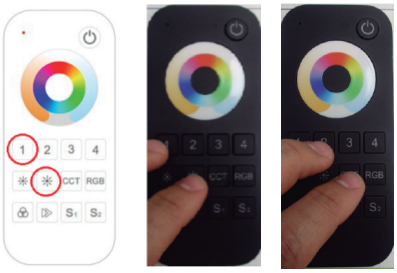


In this case we will use the four zones that the remote control allows us to control although, in other cases, we could use 1, 2 or 3 zones, without having to use all the zones, giving us the option of using those free zones for possible extensions.

We will start with the management of the different zones for which, firstly, we will configure each zone of the remote control depending on the type of LED strip or lamp that is going to be controlled (single colour, double colour-TW, RGB, RGBW or RGB+CCT).

Configuration ZONE 1

Zone 1 must be configured in order to control single-colour LED strips so, as indicated in the instructions, you must press, at the same time, the zone button ( ) and the brightness button ( ) until the remote control indicator light stays green for a few seconds (see images below).



After performing this operation, Zone 1 of the remote control will only control monocolour LED strips so that only the brightness intensity can be

regulated and, with the colour wheel, we will have a control as if we had a wheel with the following characteristics:

Configuration ZONE 2

Zone 2 must be configured in order to control Tuneable white-TW LED strips so, as indicated in the instructions, you must press, at the same time, the zone button ( ) and the button ( ) until the remote control indicator light stays green for a few seconds (see images below).

After performing this operation, Zone 2 of the remote control will only control Tuneable white-TW LED strips so that you can adjust the brightness intensity and colour temperature and, with the colour wheel, we will have a control as seen on the laterals thereof which, moreover, has the following characteristics:

Configuration ZONE 3

Zone 3 must be configured in order to control RGB LED strips so, as indicated in the instructions, you must press, at the same time, the zone button ( ) and the button ( ) until the remote control indicator light stays green for a few seconds (see images below).

After performing this operation, Zone 3 of the remote control will only control RGB LED strips so that the intensity of brightness and the type of colour (R/G/B) can be adjusted and, with the colour wheel, we will have a control like you see in the centre thereof that, in addition, has the following characteristics:

Configuration ZONE 4

Zone 4 must be configured in order to control single-colour LED strips so, as indicated in the instructions, you must press, together, the zone button( ) and the brightness button ( ) until the remote control indicator light stays green for a few seconds. This process would be carried out in a similar way to the configuration of Zone1 with the difference being that you press the Zone 4 button instead of the Zone 1 button.

In the case of needing any other type of control, not indicated in the example, the process would be similar, pressing for each type the appropriate sequence indicated in the instructions.

Once the configuration has been carried out, the pairing of the controllers with the different zones of the universal remote control will be done in a simple way, following the contents of the instructions and which would be as follows:

Matched ZONES

For the matching of the controllers that are in each Zone, the following operation must be performed:

1. Short press of the controller's matching button (the blue light of the controller will flicker slowly) and then, within 5 seconds, press the Zone 1, 2, 3 or 4 button, depending on the zone to which the controller corresponds, until the blue light flickers with greater speed.
2. Once matched, you need to check that the controller responds. Normally, when touching any button or the colour wheel, the matching button will flicker as it is receiving a control signal. If this does not occur and the controller does not respond to the remote, the matching operation should be repeated.

The matching button can be, depending on the type of controller, internal (it will say "match"), to be pressed with an awl or another implement which fits the hole, or external (it is found by removing the covers and it lights blue when it has power), to be pressed manually.

INSIDE EXTERNAL

It will be repeated with as many controllers as are defined in each Zone.

Can I dim adjust control an LED strip that I already have installed?

It depends.

It will be possible as long as an intermediate dimmer switch can be added between the strip and the power supply.

This is the case for single colour LED strips. This type of dim adjustment can be done using the CONTROL-V10 that can be adjusted using the MANDO32 or by means of a wall switch (normally open) using two-wire cabling.

There is also the possibility of performing the control using PANELTACTIL10 or SWITCH10. Consult the catalogue and/or the technical data sheet of the product.

Is it possible to control the RGB and RGBW LED strips from JISO ILUMINACIÓN using DMX?

It depends.
It will be possible as long as it is connected to a controller capable of being controlled by a DMX Master. That is, it will not depend on the LED strip but on the controller connected.

Currently, JISO ILUMINACIÓN does not have controllers which can be used with DMX.

Do the PCHANDSENSOR and PCDIMMER devices have polarity?

YES.
In fact, it is clearly stated in our catalogues. These devices have two terminals where the power supply coming from the source ("+" and "-") is welded and two other terminals where the supply to the LED strip ("LED +" and "LED -") is welded.
If it is connected with the polarity changed, it will not work properly. Also, if the power supply is connected to the LED output, it will remain switched on without functioning properly and there is the possibility that internal damages will appear in the electronic components.

Can I add the PCHANDSENSOR in a cupboard so that it turns on and off when the door is opened?

NO.
The PCHANDSENSOR works by detecting when a finger passes in front of the optics of the device.

What type of power supply do I need in order to connect a PCHANDSENSOR or PCDIMMER?

These two devices work, simply, with a standard non-adjustable power supply point. The devices themselves are responsible for turning on, off or dimming, depending on the model.

Is it possible to dim adjust LED strips through DALI protocol by means of a controller?

YES.
JISO ILUMINACIÓN has a controller (TCDALI) that allows you to control 4 channels of DC output through DALI protocol. With this controller it is possible to control the channels independently or jointly depending on the configuration that is chosen.
When all the channels are managed at the same time, the device only receives one direction, whereas if the four are used, it receives four consecutive directions.

Is it possible to dim adjust LED strips by phase-cut dim adjustment?

It will be possible as long as the power supply that added allows for this type of dim adjustment. It is not a dim adjustment system normally used for this type of product and JISO ILUMINACIÓN does not have any power supply which is adjustable through this system.

What power source would it be advisable to use in order to install on wood?

When we have to install a power supply, connected to an LED strip, which will be placed on wood. We will have to consider whether the power supply has the following marking:

DESIGN AND INSTALLATION GUIDE FOR LED STRIPS

INDEX

0. IMPORTANT NOTE

Before any installation with this product line, please consider the following instructions and recommendations in order to guarantee a correct and long-lasting installation.

The warranties for the LED strips supplied by JISO ILUMINACIÓN, SL. are subject to compliance with the warrantee conditions included in the current catalogue, to current technical-legal standards concerning these types of installations and to the considerations outlined in this guide, according to standards agreed upon by leading manufacturers and installers.

Reading of the information included in this document is mandatory for ensuring the correct design and installation of LED strips supplied by JISO ILUMINACIÓN, SL., as the new LED lighting technologies, specifically LED strips, require, on the art of the qualified professional, the necessary knowledge and careful attention and observations that we sum up in this document.

JISO ILUMINACIÓN, SL. ***WILL NOT*** *be held responsible for any faults of their products, if they are the result of an installation that fails to take into account the standard guidelines and recommendations and the technical instructions stated in this manual.*

The non-compliance of these standard guidelines and recommendations and technical instructions will result in the invalidation of the product warranty.
This document annuls and replaces the previous ones. The company JISO ILUMINACIÓN, SL. reserves the right to effectuate technical, formal and dimensional modifications at any given time and without prior notice. The complete or partial copying of the current manual is forbidden, unless there is written authorisation from the manufacturer.
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1. BASIC STANDARDS AND RECOMMENDATIONS

BEFORE INSTALLATION

Use of different types of LED strips in the same installation

- The use of strips from other manufacturers in the same installation with strips supplied by JISO ILUMINACIÓN, SL. is **NOT** recommended. The differences in design, component quality, LEDs, PCB strip, tapes, etc., can cause major installation problems, strip damage, variations in colour temperature or light intensity, damage to the power supplies or control units.
- **Do NOT under any circumstances** mix different models with different power capacities, voltages, chip types, colour temperature, IP protection, etc., including JISO ILUMINACIÓN, SL. LED strips.

Basic information on LED strips

- Depending on the model as well as the packaging label, on the side labelled PCB, where the electronic components are located, are some basic captions that allow us to determine at the very least;
  A. The power supply voltage. (In this example DV12V, Direct Current of 12V)
  B. Polarity for the connection of the supply line.
  C. Cutting line.

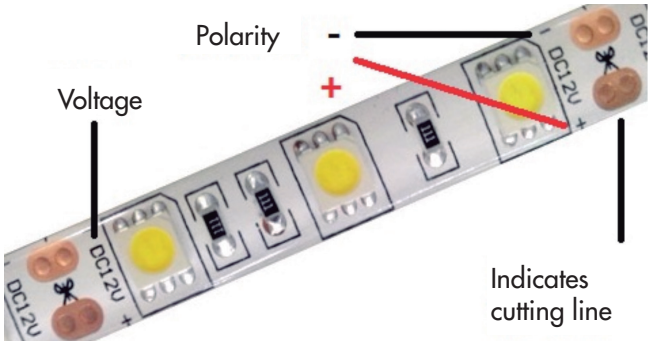


Image 0. LED Strip features

- LED strips with a continuous length of more than 10m must **NOT** be installed when they have an IP 20 protection class. This is because a strip that is longer than the one shown, could generate a loss of light intensity in the end segments, and it may also overheat the LED strip's PCB due to an excess of intensity circulating through the printed circuits boards.
- Led strips of more than 5m continuous length must **NOT** be installed when they have an IP 65 protection class. This is because connections of this type of strip are not recommended as they may cause a weak point as far as the conservation of the IP protection class is concerned.
- The LED strips are not designed to remain operational for a continued period of 24H.

(See "After installation" section)

Power supplies (Refer to point 3 in this document for further information on the current document)

- The LED strips connect to direct current and low voltage power supplies with voltages of 12V, 24V… that should be supplied or validated by JISO ILUMINACIÓN, SL. The use of power supplies that do not comply with the aforementioned may be considered reasons for warranty invalidation with **NO** claims being accepted. (See Table on compatibility between power supplies and LED strips depending on length in Annex I which shows the compatibility of the drivers supplied by JISO ILUMINACIÓN, SL. with the LED strips according to their length).
- Always check that the voltage of the LED strip matches the voltage of the power supply.**" LED Strip 24V + Power Supply Unit 24vV "**
- When using standard power supplies from the JISO ILUMINACIÓN, SL. catalogue, one should ALWAYS overcharge by between around 15% and 25% due to the efficiency of these types of power supplies.

E.g. Installation of 5m LED strip of 14.4 w/m.
14.5 x 5 = 72W → 72 x 1.25 = 90W

In the previous case the first possible power supply option capable of providing 90W which coincides with a power supply of 100W will be selected (EX.: Ref. 3100-2524V or 3100-2924V) (see Table of compatibilities between power supplies and LED strips depending on length in Annex I which shows the compatibility of the drivers supplied by JISO ILUMINACIÓN, SL. with the LED strips according to their length). It is extremely important that this is clear and understood, as the failure to comply with this condition may result in warranty invalidation.

- With regards to the use of adjustable power supplies from the JISO ILUMINACIÓN, SL. catalogue, one should **ALWAYS** try to adjust the charge level to the power supply capacity without overcharging, except in the case of reference no. 3100-4424V and 3150-4424V, which **MUST** be overcharged in the same way as the standard supplies.
- Bear in mind that excessive overcharging may result in a decrease of the desired output.
- For large-space installations, it is preferable to use several standard power supplies, rather than one high voltage power supply with several metres of cable from the power supply to the LED strips.
- From the power supply to the LED strip, the less power cable you have, the better. This will ensure correct operation, avoiding voltage drops, loss of intensity or differences in brightness between the different sets of strips, etc.

When installing the power supply unit at greater distance from the LED strip, the cable section must be increased exactly as indicated below, depending on the metre count:

- o 0.10 cm. to 1 m: Cable section 0.25mm²
- o From 1 m to 3 m: Cable section 0.50mm²
- o Do not install at more than 3 metres without prior examination of the installation features

- It is necessary for the power supplies to have adequate ventilation in order to avoid overheating. Some of the power supplies include forced ventilation which may produce a disagreeable noise and this factor should be considered prior to its design and installation. This occurs in the standard power supplies with 240W voltages (3240-2524V) and 320W (3320-2524V).
- Before any design or installation of power supplies, it must be taken into account that the number of units for installation on one single circuit depends on the type of circuit breaker (thermal magnetic) of the line where it is being installed. In the following table you can see the number of recommended units by the manufacturer of the power supplies provided by JISO ILUMINACIÓN, SL. This information was taken from the current technical information sheets of the manufacturer.
- The information shown on the above table must be taken into account because if the maximum amount of units per circuit breaker is exceeded, the circuit breaker will react during initiation as the current peak which limits it will be passed. This table references the adjustable power supplies and/or IP ≥ 65 power supplies. We do not have this information for the standard power supplies so you should check the technical information sheets for the power supply and the selected circuit breaker before installing them.

Installation points of LED strips and/or location of power supply

- To maintain consistency with regard to the light effect generated by the LED strips, it is recommended that you check that the surfaces where the LED strips will be laid out are even and consist of the same features (paint, material base, surface shape, etc.) before design and installation. This is because the same strip, depending on the type of surface over which the light reflects, can generate shades of light different to the one chosen in the design.
- When choosing a LED strip model, you should consider whether it will be installed in a profile without a diffuser, with a diffuser or if those are strips with an IP level in which, due to the light reflection over the protective material that illuminates the white area of the LED strip, the colour tone may vary and change to colder shades.
- Installation of any LED strip supplied by JISO ILUMINACIÓN, SL. **MUST** be carried out on a technical aluminium profile (see Jiso base board ref no: 700 or Jiso range profiles).
- Installation of any LED strip supplied by JISO ILUMINACIÓN, SL. must **NOT** be carried out on other surfaces which are not a technical aluminium profile. This may include: wood, tiles, Pladur®, Alucobond®, plaster, iron or steel / stainless steel, etc. These have characteristics which are less favourable than those of aluminium in order to ensure heat dissipation from the high temperatures generated by the LED.
- The room temperature of the location where the strips are installed must not exceed 60° C, nor should it fall below -25° C. If it does, the lifespan or operability of the LED strips could be affected in the short-term.
- Preserve the LED strips in their original packaging and remove them only at the time of use, as the LED technology may be affected by static electricity and damaged involuntarily.
- The optimal storage temperature should not exceed high temperatures (80°C), nor be below extremely low temperatures (-40°C).
- It is **NOT** recommendable to place LED strips on the ground as they may be damaged by environmental factors as well as physically due to the use of the location where they are placed (human transit, cleaning products, etc.).

DURING INSTALLATION

- Installation of LED strips must be carried out by a qualified professional with experience in design and installation.

Handling of strips during installation

- Do **NOT** step on, fold excessively, damage, force, place on surfaces with static electricity, handle with hands/gloves with residue of solvents, adhesives or other products that may alter the functional features or damage the LED strips.
- It should be taken into account that LED strips have, in their base support, where the LED chips, IC resistances or other components (known as PCB flexible) are welded, an electrical circuit (it is NOT an inert strip) that must maintain the proper continuity so that the energy flow runs adequately along the entire PCB.

Precautions concerning installed LED strips

- Once an LED strip is installed, it is recommended that they are adequately protected during painting work on nearby surfaces as they may suffer damage from direct contact with painting tools, the dripping of excess paint, paint fumes and/or sprays, brought about by mechanical painting tools.
- The consequences of lack of protection will alter the functionality of the LED strips, changing their shading, producing continuity failures in the internal circuits and can even cause overheating that damages the LED chips, with failures in sections of the LED strips.

WARNING: It is extremely important that those who are responsible for painting work are aware of the locations where LED strips have been installed, as they may not know of the existence of these types of installations and may cause them involuntary damage. This is quite common in locations like false ceilings, dark areas and other difficult to access areas.

Locations of the power supplies

- Power supplies should be located in open spaces and should not be enclosed, so that they are adequately ventilated and overheating can be avoided.
- The polarity of the connection with the strip must be checked in order to avoid activation problems. This is because if it is not properly connected, they will not activate since the LED chips are polarised (pole "+" and "-").

AFTER INSTALLATION

- Adequate maintenance must be carried out, avoiding damage to the LED strips during the process and for this reason, in the entire installation, it must be noted that static electricity in the chips and components must be avoided, as well as residue deposits of any kind that can alter the lighting conditions of the LED strips.
- It is of vital importance that the room temperature where the strips are installed does not exceed 60° C nor should it be less than -25° C. Otherwise, the lifespan of the LED strips may be shortened and may even lead to short-term failures and loss of functionality of the LED stripes.

REMINDER: It is very important that those who are responsible for painting work in places where LED strips have been installed are informed, as they may not know of the presence of these types of installations and may cause them involuntary damage. This is quite common in locations like false ceilings, dark areas and other difficult to access areas.

- All users of LED strips supplied by JISO ILUMINACIÓN, SL. should be aware that said LED strips are **NOT** designed to operate for a continuous

period of 24 hours.
- For optimum performance and durability, the strips should **NOT** be operational for a continuous period of more than 14 hours per day. Otherwise, it may lead to problems with the performance and operation of the LED strips, and may lead to failure and even loss of warranty.

2. TECHNICAL INSTRUCTIONS FOR THE FITTING OF LED STRIPS

– Correct fitting of LED strip-Technical Profile, using the double-sided strip adhesive (3M) which incorporates the unexposed side of the PCB of the LED strip.

Image 1. LED strip adhesive

1. With the top cover of the profile removed, clean the surface of the profile just before fitting the LED strip. It is of vital importance that there is no type of dust, humidity, residues of metallic materials, paint, etc., on the surface where the LED strip adhesive will be fitted.

Remember, DO NOT stick LED strips on the profile without having first cleaned any residues of dust, humidity, metal chips, paint, plastic residue, lubricants, etc

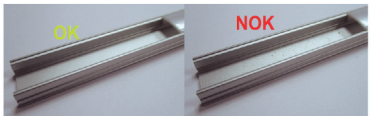


Image 2. Profile cleaning (OK=Correct and NOK="NOT OK"=Incorrect)

2. We recommend that the removal of the adhesive's protective tape so that the active part remains visible is done while the LED strip is in the process of being fitted to the profile. Otherwise, suspended dust, clothes or any materials suddenly falling to the ground could leave bits sticking to the LED strip, thus causing it to lose its sticking capacity, which may in time cause this material to weaken and detach from the strip.

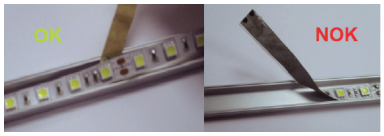


Image 3. Fitting the LED strip while removing the protective adhesive

3.Apply pressure to the zones of the strip without chips in order to reach a better adhesion between the LED strip and the profile. Poor adhesion = **POOR HEAT DISSIPATION/SHORTER LIFESPAN OF THE LED.**

This pressure may be applied manually, avoiding the transmission of static electricity to the LED strip, or by using soft rubber-rollers that cannot damage the LED chips or transmit static electricity.

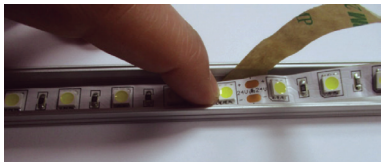


Image 4. Pressure on the gaps between chips in order to improve adhesion

4. We do **NOT** recommend the immediate activation of the LED strips after fitting them on the profile nor do we recommend the fitting of LED strips while they are turned on.

- When the LED strips are fitted, forming a geometric pattern with angles like squares, triangles, rectangles, etc., the correct way to make the turns is by leaving a small amount of extra cable, of 5 to 10cm, which will allow you to make the turn correctly without having to force the LED strip.
- We recommend that you avail of the personalized service for strips offered by JISO ILUMINACIÓN, SL. Otherwise, you should follow the instructions below:

REF. JISO	FAN	INRUSH CURRENT (A)	T50 (us)	B16 (Ud.)	C16 (Ud.)
3020-6524V	NO	70	215	8	14
3035-6524V	NO	55	510	4	7
3040-4512V	NO	50	210	9	16
3040-4524V	NO	50	210	9	16
3060-4524V	NO	55	265	9	16
3060-6524V	NO	60	525	3	6
3080-4524V	NO	70	485	3	6
3100-4524V	NO	60	415	4	8
3100-6524V	NO	75	100	2	3
3120-4524V	NO	60	375	5	9
3150-4524V	NO	65	425	4	7
3150-6524V	NO	60	900	2	3
3185-4524V	NO	65	445	4	7
3240-4524V	NO	75	570	2	4
3320-4524V	NO	70	1010	1	2

Table 1. Power supply number by circuit breaker type

B16 = Circuit breaker Curve B of 16A
C16 = Circuit breaker Curve C of 16A

1. Take the necessary measures for each section, bearing in mind the cutting lengths according to the model you have chosen
2. Cut the strips at the length chosen on the indicated areas only.

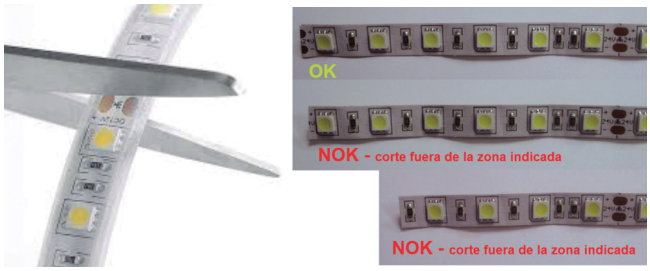


Image 5. LED strip cutting OK y NOK

3.Cut and prepare the connection wiring between sections (5-10cm, or as required bearing in mind the possible problems with voltage drops).
The appropriate connection wire should be used for each welded connection, avoiding overcharging so no overheating or short-circuits due to proximity are produced.

Image 6. Examples of OK y NOK weldings

4. Welding should be done correctly leaving the points with sufficient space between them and with wiring between the strips.

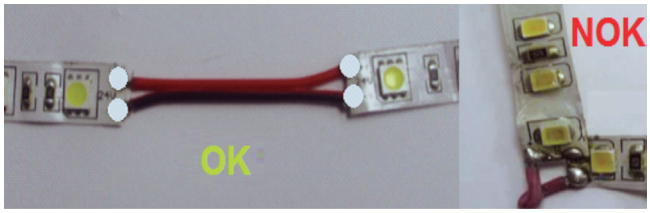


Image 7. Preparation for corner, turn or direction change

5. Finally, protect the area of the connection by covering it with heat-shrink material in order to avoid unwanted offshoots and contact.

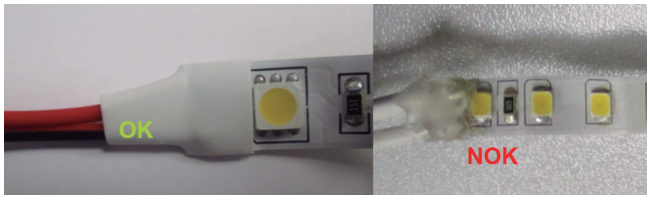


Image 8. Protection of the LED strip - connector cable using heat-shrink material

Below you can see several cases of incorrect fittings of LED strips in areas with angles and direction changes:

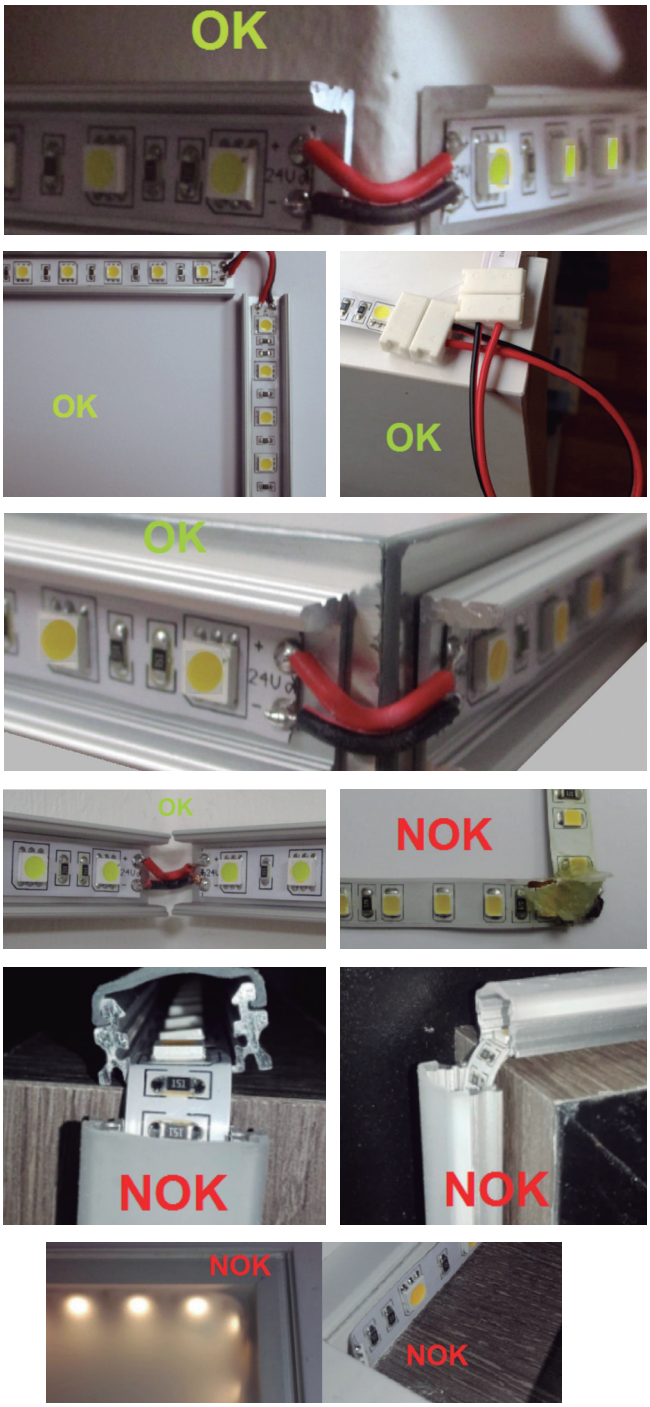


Image 9. Examples of NOK corners, turns and direction changes

– Just like when LED strips are fitted in the previous situations, when it is necessary to perform cuttings, junctions and connections, **we recommend that you avail of the personalised service for strips offered by JISO ILUMINACIÓN, SL.** Otherwise, you should follow the instructions below, mentioned beforehand. Carefully observe the above and the images of the incorrect installations as these kinds of bad practices can cause problems in the installation and the devices, as well as loss of warranty for the products supplied by JISO ILUMINACIÓN, SL.

WARNING: We do not recommend cutting, connecting or handling of the interior of the LED strips with IP ≥ 65 because this type of handling could affect the waterproofing capacity, as well as the warranty of the LED strip itself.

– JISO ILUMINACIÓN, SL. has a range of CONNECTORS/ JUNCTIONS/SPLICES to facilitate the correct and simple performance of same. Various examples of these are shown below:

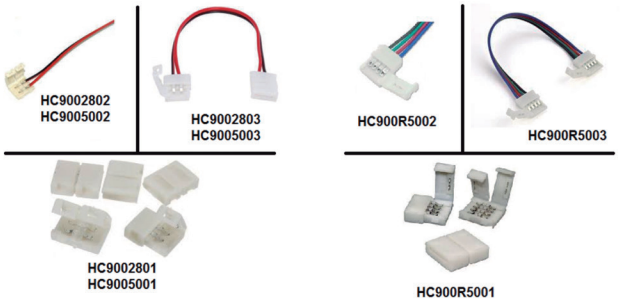
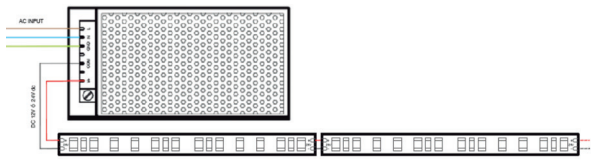


Image 10. Examples, with their reference no., of non-welded connectors

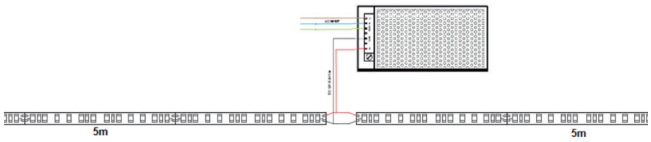
REMINDER: The IP65 LED strip will no longer be classified as such after a connection is performed. In order to maintain its waterproofing capacity, we must apply a sealing product to the connection area. The JISO ILUMINACIÓN, SL. warranty will remain valid as long as said section is ordered with the connection which is custom pre-assembled in the factory.

TYPE DIAGRAMS FOR LED STRIP INSTALLATIONS

Monocolor Strip LED



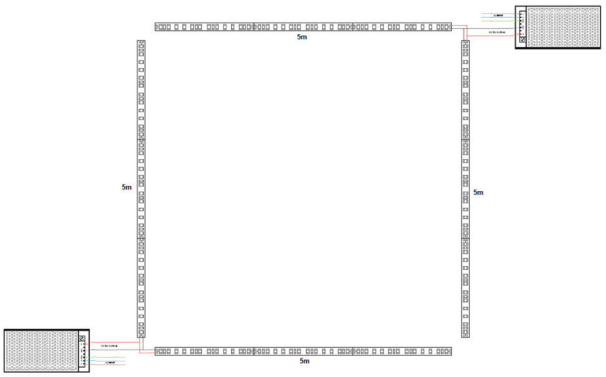
1. Installation 2 monocolor strips to driver.



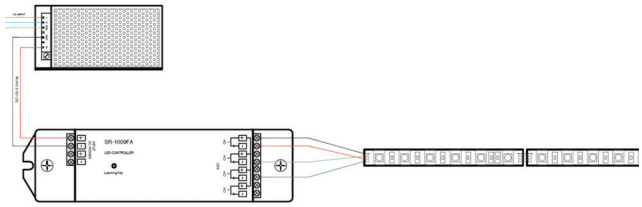
2. Installation basic monocolor+ strip

3. 4 monocolor strips in parallel installation

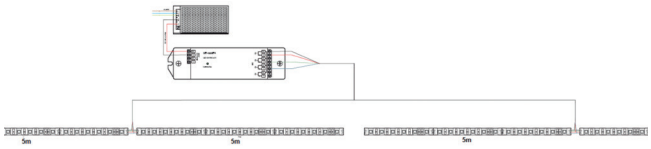
4. Installation of 4 strip lights making a Square shape



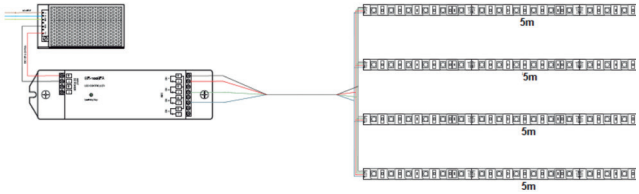
RGB LED STRIP



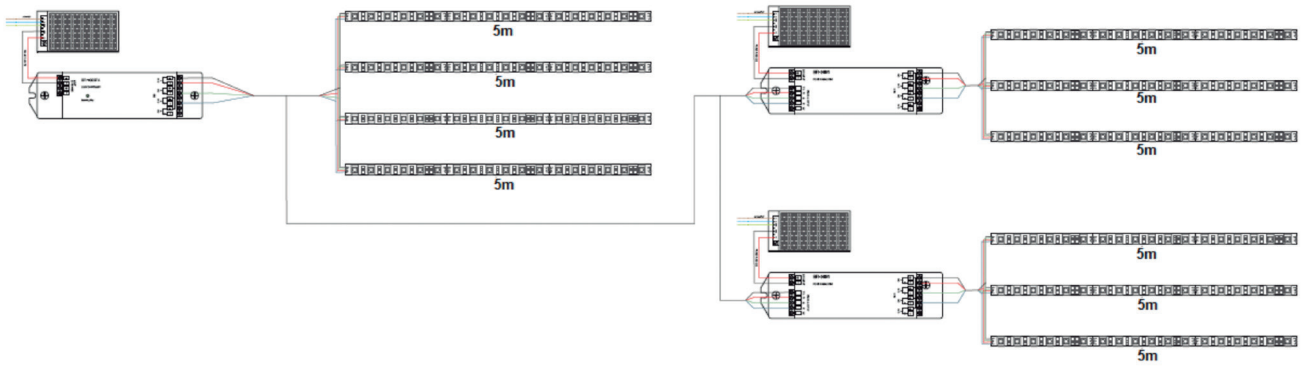
1. Installation of 4 RGB LED RGB



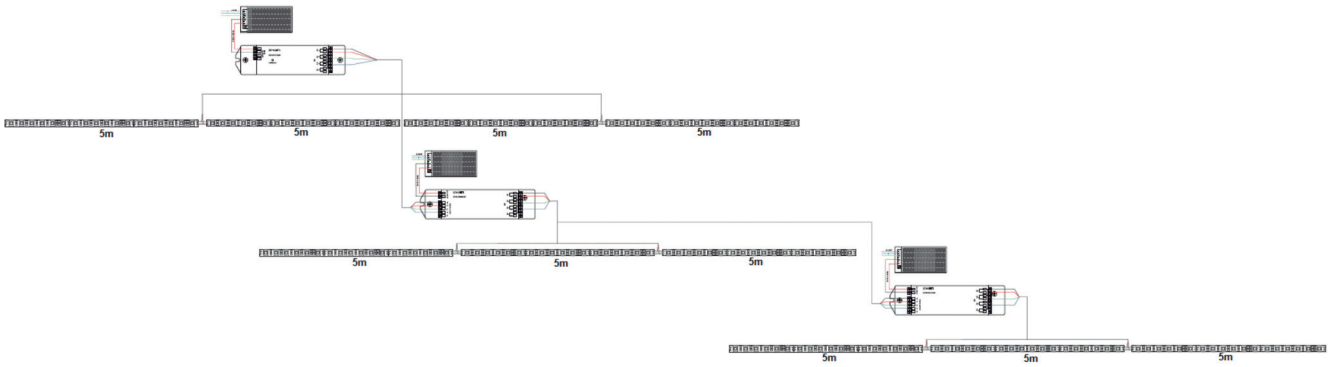
2. 4 RGM Led strips in parallel installation



3. Installation of more than 20 meters of Led strips. Type 1



4.Installation of more than 20 meters of RGB Led strips. Type 2.



Compatibilities between power sources and LED strips depending on length

MODEL	POWER (W/m)	VOLTAGE (V)	≤ 1m	1m < L ≤ 2m	2m < L ≤ 3m	3m < L ≤ 4m
90004	4,8	24	**3015-2524V** 4.8x1x1.2=5.76W	**3015-2524V** 4.8x2x1.2=11.5W	**3025-2524V** 4.8x3x1.2=17.3W	**3025-2524V** 4.8x4x1.2=23W
90009	9,6	24	**3015-2524V** 9.6.x1x1.2=11.5W	**3025-2524V** 9.6.x2x1.2=23W	**3035-2524V** 9.6.x3x1.2=34.6W	**3050-2924V** 9.6.x4x1.2=46.1W
90014	14,4	24	**3025-2524V** 14.4x1x1.2=17.3W	**3035-2524V** 14.4x2x1.2=34.6W	**3075-2924V** 14.4x3x1.2=51.8W	**3075-2924V** 14.4x4x1.2=69.1W
90018	18	24	**3025-2524V** 18x1x1.2=21.6W	**3050-2924V** 18x2x1.2=43.2W	**3075-2924V** 18x3x1.2=64.8W	**3100-2924V** 18x4x1.2=86.4W
90019	19,2	24	**3025-2524V** 19.2x1x1.2=23W	**3050-2924V** 19.2x2x1.2=46.1W	**3075-2924V** 19.2x3x1.2=69.1W	**3100-2924V** 19.2x4x1.2=92.2W
90025	25	24	**3035-2524** 25x1x1.2=30W	**3075-2924V** 25x2x1.2=60W	**3100-2924V** 25x3x1.2=90W	**3150-2924V** 25x4x1.2=120W

3. TECHNICAL INSTRUCTIONS FOR THE INSTALLATION OF LED STRIP POWER SUPPLY UNITS

- You must NOT connect the power supply to the LED strip without first checking that the voltages of both elements match. If this is not checked and the voltages are not the same, they may be damaged, the installations may overheat and result in greater damage. It is very important that this is clear and understood, as the failure to comply with this requirement may result in warranty invalidation. Normally, 12V or 14V LED strips are used and the power supplies must also be 12V or 14V respectively.
- We recommend the connection and location of the power supplies to be as close as possible to the LED strips in order to avoid unnecessary wiring and the possible voltage drops that this could lead to.
- We do NOT recommend using a cable longer than 1m from the power supply to the LED strip without calculating the possible voltage drops. Whenever you are going to make an order or connection with a longer cable length, you must calculate the voltage drops in order to avoid it causing substantial reduction in input voltage to the LED strip. When installing the power supply at a greater distance from the LED strip depending on the metres, you should increase the section of the cable exactly as is indicated below:
  - o 0.10 cm. to 1 m.: Cable section 0.25mm²
  - o From 1 m to 3 m: Cable section 0.50mm²
  - o Do not install at more than 3 metres without a previous study of the characteristics of the installation.

DIAGRAMS FOR CORRECT INSTALLATION

Standard power supply

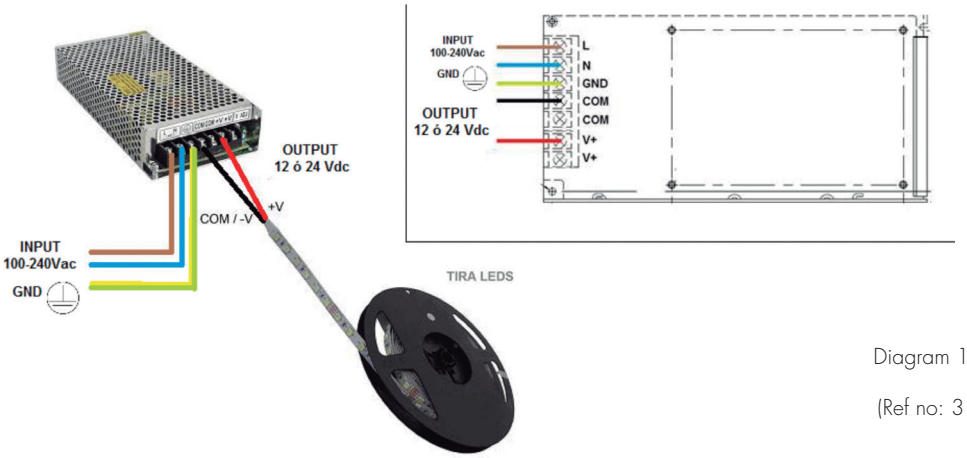


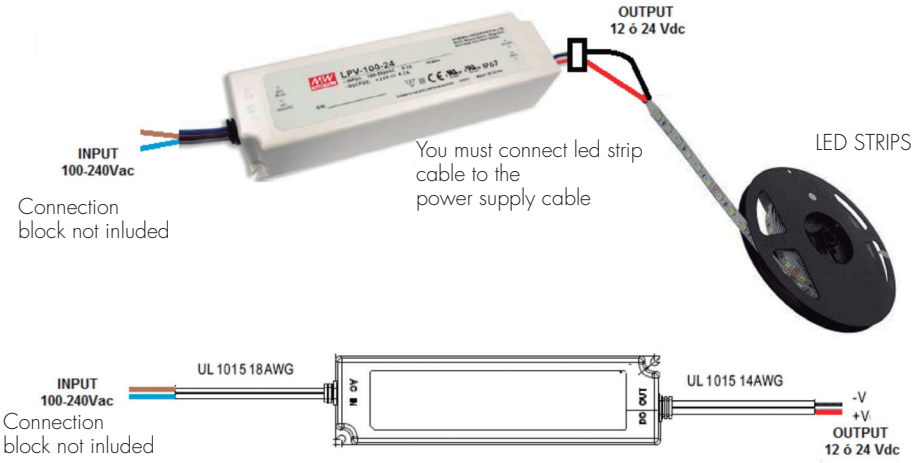
Diagram 1. Standard power supply connection

(Ref no: 3***-2512V, 3***-2524V ó 3***-2924V)

NOTE: For more information, you can request technical data sheets of the selected product or check the website: www.jisoiluminacion.com.

4m < L ≤ 5m	5m < L ≤ 6m	6m < L ≤ 7m	7m < L ≤ 8m	8m < L ≤ 9m	9m < L ≤ 10m
3035-2524V 4.8x5x1.2=28.8W	**3035-2524V** 4.8x6x1.2=34.56W	**3050-2924V** 4.8x7x1.2=40.32W	**3050-2924V** 4.8x8x1.2=46.08W	**3075-2924V** 4.8x9x1.2=51.84W	**3075-2924V** 4.8x10x1.2=57.6W
3075-2924V 9.6.x5x1.2=57.6W	**3075-2924V** 9.6.x6x1.2=69.12W	**3100-2924V** 9.6.x7x1.2=80.64W	**3100-2924V** 9.6.x8x1.2=92.16W	**3150-2924V** 9.6.x9x1.2=103.6W	**3150-2924V** 9.6.x10x1.2=115.2W
3100-2924V 14.4x5x1.2=86.4W	**3150-2924V** 14.4x6x1.2=103.68W	**3150-2924V** 14.4x7x1.2=120.96W	**3150-2924V** 14.4x8x1.2=138.24W	**3200-2924V** 14.4x9x1.2=155.52W	**3200-2924V** 14.4x10x1.2=172.8W
3150-2924V 18x5x1.2=108W	**3150-2924V** 18x6x1.2=129.6W	**3200-2924V** 18x7x1.2=151.2W	**3200-2924V** 18x8x1.2=172.8W	**3200-2924V** 18x9x1.2=194.4W	**3250-2924V** 18x10x1.2=216W
3150-2924V 19.2x5x1.2=115.2W	**3150-2924V** 19.2x6x1.2=138.24W	**3200-2924V** 19.2x7x1.2=161.28W	**3200-2924V** 19.2x8x1.2=184.32W	**3250-2924V** 19.2x9x1.2=207.36W	**3250-2924V** 19.2x10x1.2=230.4W
3150-2924V 25x5x1.2=150W	**3200-2924V** 25x6x1.2=180W	**3250-2924V** 25x7x1.2=210W	**3250-2924V** 25x8x1.2=240W	**3320-2524V** 25x9x1.2=270W	**3320-2524V** 25x10x1.2=300W

IP ≥ 65 Power supply

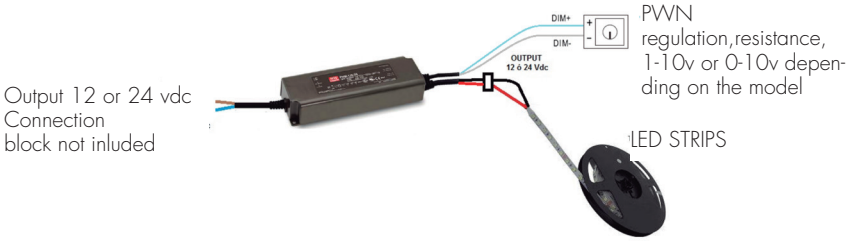


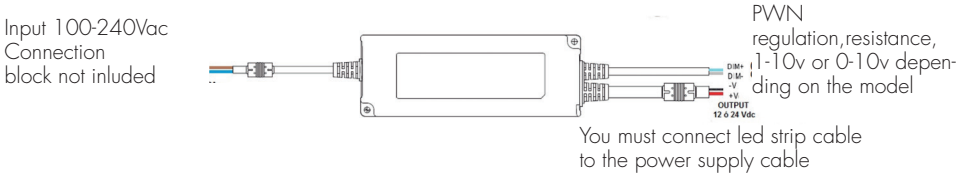
NOTE: For more information, you can request technical data sheets of the selected product or check the website: www.jisoiluminacion.com.

Diagram 2. IP > 65 Power supply connection

(Ref no: 3***-6512V ó 3***-6524V)

Adjustable power supply





NOTE: For more information, you can request technical data sheets of the selected product or check the website: www.jisoiluminacion.com.

Diagram 3. Adjustable power supply connection

(Ref no: 3***-4512V ó 3***-4524V)