TECHNICAL SUPPORT

IMPORTANT NOTE

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Check for the most up to date information on the website: www.jisoiluminacion.com

JISO ILUMINACIÓN is not responsible for any errors that may appear in this document.

Remember that electrical installations must be carried out by qualified personnel.

If your question is not answered in this document, JISO ILUMINACIÓN, SL. invites you to make further inquiries related to our products through your usual supply warehouse or by contacting us by phone at (0034) 96 252 3061 or by email: asistenciatecnica@jisoiluminacion.com.

GENERAL ISSUES LED LIGHTING

Frequently asked questions (FAQ)

Why does my LED luminary flicker or not turn off (residual light)?

LED technology, although apparently similar to traditional lighting, has differences which must be taken into account for their normal functioning:

General recommendations:

1- Firstly, follow the installation and connection order for the different elements:
   A. Perform line checks, the neutral without direct current to DRIVER/LUMINARY and the phases to switch elements.
   B. Connection order: connect the LED luminary to your DRIVER, then connect the Driver to the Line and finally introduce the current.
2- Each DRIVER with the appropriate LED luminary! The power supplies (DRIVERS) are electronic devices and not merely transformers. They deliver regulated voltages and currents and have direct current outputs, so respect connections and polarities. CAUTION especially in installations which feature different LED luminary models. Check the driver, the type of current, the voltage and the polarity, taking into account that the current can be 300mA, 350mA, 600mA, 700mA, 1000mA, etc., and that the output current of the driver is continuous.
3- Wiring. Splices and Connections. It is important to use suitable section wiring, considering that the current required is very small. The splices require welding and insulation with heat shrink tubing or tape. Observe the connections, whether they are series or in parallel according to the manufacturer's installation recommendations.
4- It may be that the LED luminary is giving off any light but always remember that current is still circulating in the system.

If you encounter any issue, please give us the opportunity to resolve it before returning the product. Most technical assistance questions can be answered through our knowledge base on the website: www.jisoiluminacion.com, or via the technical support service by email: asistenciatecnica@jisoiluminacion.com. The use of the electronic elements and parts of the installations can cause some very specific and sporadic incidents which do not damage the LEDs but which are striking, such as residual luminescence (brightness), flickering or switching off shortly after installation (temporary block which works by removing and returning the switch).

All these effects existed previously but were not detected because lighting technologies were not as efficient; a lot of energy was needed for their operation and the "residual" voltages, the induction generated voltages, the commuted point installations and the mechanisms with light signal did not affect them.

Most frequent causes of the effects mentioned above:

1- The switches of the electrical installation cut the neutral whereby the phase reaches the LED.
2- Current flows through the neutral, due to earthing shunt or other causes.
3- Induced current. This can be generated by the presence of large household appliances or industrial machinery.
4- Pilot signalling switches (Neon or LED). This type of switch admits a current of 12 to 30 volts.
5- In switched-point installations, a residual voltage may be produced (due to the length of the crossing lines) which acts as a capacitor generating small voltages which can maintain some brightness, flickering or blocking of the LED luminary driver.

Possible solutions:

In points 1, 2 and 5, we recommend checking the electrical installation.

Neutral direct to Driver - Phase to switch

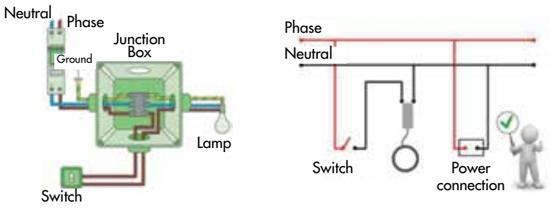
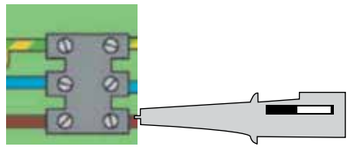


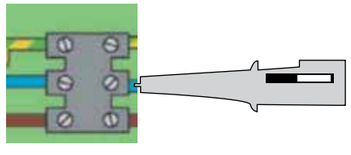
Image 1. LED luminary connection diagram + switch

To easily check if it is neutral or phase, we can use a pole detector, or Multimeter/Tester.

- When you touch the phase conductor with a pole detector, the neon light shines. In the new models with an LCD display showing the voltage, when you touch the phase it will read 220v.



- In pole detectors, neither the neutral nor the earth triggers the neon light. And in the pole detectors with an LCD display, no voltage is indicated for the neutral or earth.



With the Multimeter or tester using Voltmeter AC 750V function

Between phase - neutral 220V-240V will be indicated

Between neutral and earth 0V.

And between phase-earth 220V-240V.

Another possible solution in cases of residual current would be to install a capacitor of 0.47uF 400V (Solution points 3 and 4).

Image 2. Condenser REF. DCCONDEN-1

You can also use bipolar switches or contactors to count the current flow to the lighting lines. (Solution points 3 and 4

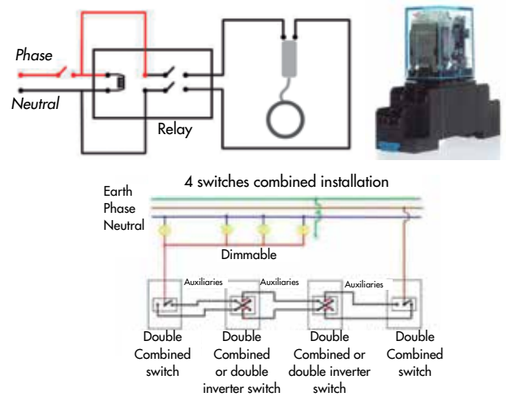


Image 3. Contactor REF. DCCONTACT-1

My home network features two active poles ("biphasic"). Might there be any incompatibility with JISO ILUMINACIÓN, SL. LED luminaries?

Yes.

In this type of installation, in which the two cables which arrive to the luminary driver contain voltage, with no difference between phase and neutral, it is possible that the drivers will block themselves (in self-protection) or that the light emitted by the LED luminary is visible even with the switch open (since only one of the phases is cut).

This is because the JISO ILUMINACIÓN, SL. LED luminaries which include the JISO driver have a voltage supply which generally ranges from 100-240V and, like the conductor cables of the installations discussed, have a potential such that they are capable of activating these drivers at any time due to the generation of a voltage, according to potential difference, greater than 100V and less than 240V. This potential difference causes the driver to activate and powers the SMD LED chips at low strength.

In order to avoid problems with this type of installation, the following options exist:

If you have not yet ordered the material:

- Select a reference number that incorporates a driver with a voltage range between 220-240V. This does not mean that the driver will not continue to have a permanently connected active pole (phase) but, since a potential difference greater than 220-240V is required for its activation, the LEDs will not receive power from the driver.

If you have already ordered the material (choose one of the two options):

- Add an omnipolar circuit breaker which, when cutting the two active poles on the switch, will leave the driver completely unpowered whenever the switch is used to turn off the light.
- Add a relay to generate an effect similar to that achieved by the omnipolar circuit breaker.

Can I install a fan on the same line?

It is recommended that you do not do this on the same line as booting the fan/extractor may damage the luminary driver.

This can also occur when the power supply of the fan or any other equipment that needs high intensities to boot is close enough to the power wiring of the luminaries. This is because electromagnetic inductions can be generated which damage the drivers and generate flickers or residual light in the luminaries, among others.

Which driver is compatible with the luminary I purchased?

On p. 322 of the catalogue you can find the table showing the reference numbers of the drivers compatible with each luminary model. These drivers can be either adjustable or non-adjustable.

If you need a replacement driver or an adjustable driver compatible with any of the JISO ILUMINACIÓN, SL. luminaries, refer to the aforementioned table in order to request the reference number that best suits your needs.

Is it possible to leave the luminary hanging before placing it in its final position?

NO.

Remember that when any equipment supplied by JISO ILUMINACIÓN is being installed, it should be placed in its final position, attached to the ceiling, so as to avoid unforeseen stress on the connection cables between the driver and LED modules.

Is it possible to use triple lighting luminaries with a commuting switch?

It depends.
Commuted circuits, depending on the length of the wiring, can generate electromagnetic induction that activates the drivers and, therefore, does not allow for the resetting of same after being powered off for between 10-15 seconds.
The consequence of this would be an incoordination between the luminaries of the installation and its consequent inconvenience to the user.

I have an installation with triple lighting luminaries and I would like the lighting cycle to start in position 3. Is that possible

NO.
Currently this type of function is not provided since the operation of the driver associated with this LED luminary is as follows:

1st lighting: Power from the driver to the SMD LED strip (indirect light)
2nd lighting: Power from the driver to the COB chip (focused light)
3rd lighting: Power from the driver to the SMD LED strip and the COB chip

Due to the above, the design of the driver does not allow for start-up directly in the 3rd lighting.

JISO ILUMINACIÓN, SL. is working to modify these features in the future but, to date, there is no way we can change the configuration outlined in the catalogue.

Is it possible to use switches with indicator lights on circuits with LED luminaries?

Using these switches with the LED luminaries is NOT recommended since, due to the way the light-emitting diode works, a residual current capable of activating the LED chips, albeit at low light intensities, will always reach the LED luminary and still generate residual light with the switches open.

Is it possible to install LED luminaries and other kinds of luminaries (compact fluorescent, halogen, etc.) in the same circuit?

NO.
The mix of technologies in the same circuit can generate incompatibilities that cause serious faults both in the LED luminaries and in the other kinds of luminaries.

I have a display and only half lights up. Is this normal?

NO.
In those of 60x60cm the light is generated by two LED strips, with constant current, connected in parallel and facing each other so that, if only half lights up, one of them has stopped working and you should contact your supplier in order to solve the problem.

Is it possible to connect several luminaries by means of the same driver?

NOT recommended (even if technically possible).
JISO ILUMINACIÓN, SL. supplies its luminaries with the appropriate driver according to their internal characteristics (Vdc and Idc).

It is technically possible to use several luminaries, in series or in parallel, with a single driver that meets the needs of the designed installation. However, our past experience means that we DO NOT recommend this type of installation. If attempted, the warranty of the products supplied will no longer be valid.

It should be remembered that each luminary comes with its associated driver (or drivers). DO NOT connect one driver to several of our luminaries without the express authorisation of JISO ILUMINACIÓN, SL.

Where can I obtain the .IES or .LDT files for the LED luminaires from JISO ILUMINACIÓN, SL?

On the website www.jisoiluminacion.com there are two ways to download the lighting files in IES and/or LDT format. You can either download the individual file for each luminaire at each product link or you can directly download all the files for the products from the catalogue in the download area.

Below is a screenshot showing how to access the complete download of all the lighting files.

Below we also show a screenshot of a specific product page where you can see the individual download area of the specific product file, highlighted in red.

Is it possible to keep my LED luminaires from JISO ILUMINACIÓN, SL. switched on 24h/day?

NO.
As a general rule, continuous 24h/day operation is NOT possible since they are designed to be used for a maximum of 14h/day.
In cases where you need the luminaires to operate for a greater number of h/day, please consult us in order to receive personalised information.

Is it possible to cover the LED luminaires with stone wool or another type of insulating material?

NO.
All the recessed LED luminaires feature the following symbol which clearly indicates the NON- suitability of this type of product for covering with insulating material.

Is it possible to connect a JISO ILUMINACIÓN downlight to a battery?

NO.
The downlights that JISO ILUMINACIÓN features in its catalogue operate with a constant current driver and so they need a fixed current supply which is capable of bearing a load that varies within a set range. This is completely different from how a battery works.

For installations with a battery it would be logical to use 12V or 24V LED strips if the battery allows it, taking into account all the conditions set out for the installation of LED strips.

Is it possible for my LED downlight to take more than 1 second to turn on?

YES.
Moreover, this is not just linked to the activation of the driver. It may also depend on the type of installation, operating mechanisms, etc. In fact, in a line with different LED devices e.g. with light bulbs and downlights, the difference in the time it takes to switch on may be appreciable.

Is it possible to position the driver at a distance greater than the factory setting?

NO.
The drivers are supplied connected to the downlights and this is how they should be installed. Any other type of installation is the responsibility of the installer.

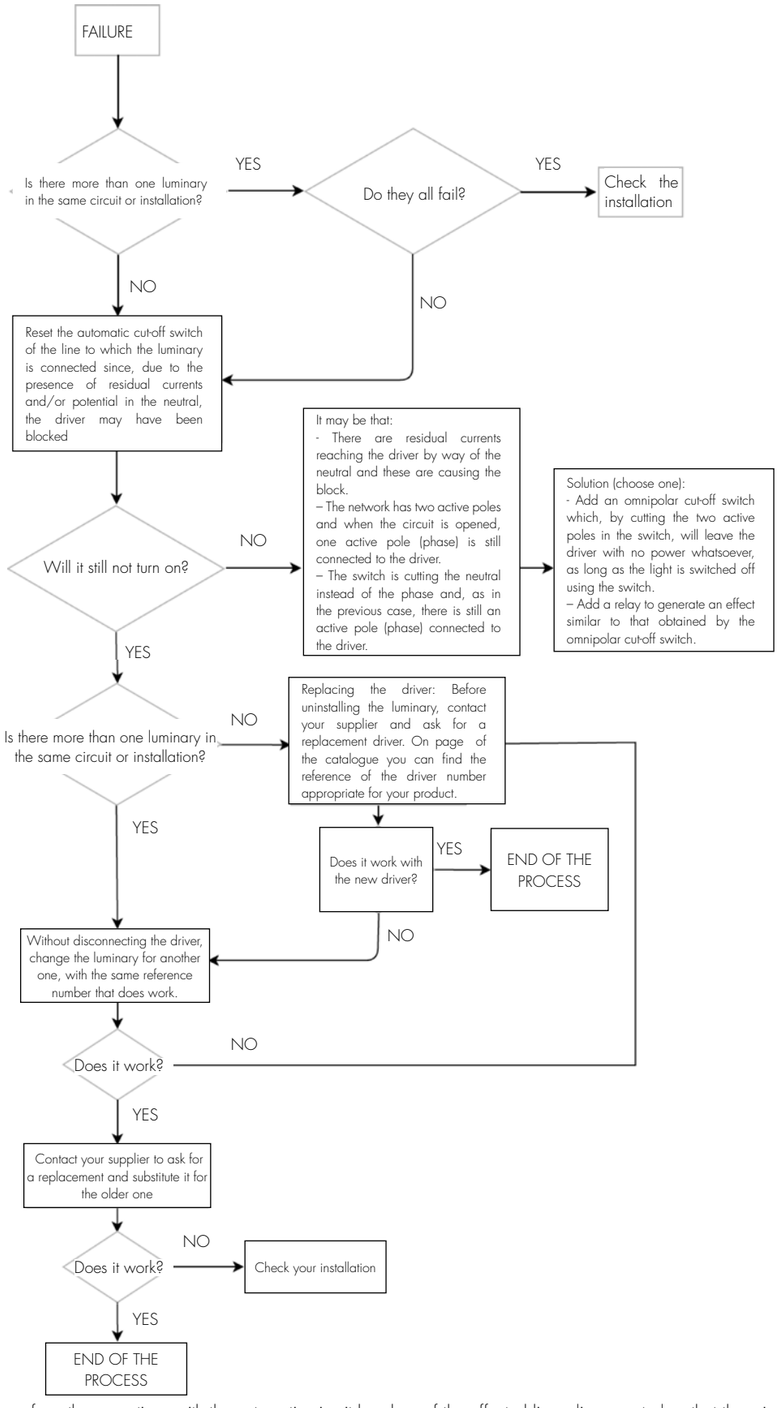
What does it mean if a luminaire is UGR<19?

A luminaire is normally indicated as being UGR<19 if, in the Unified Glare Rating parameterised table obtained according to the photometric examination of the luminaire in question in accordance with CIE 190:2010, it is observed that most of the positions set in it have a value of less than 19.

This must be interpreted correctly since, unlike what is usually thought, this does not mean that UGR<19 will always be the case, regardless of the installation. The reference standard clearly indicates that the Unified Glare Rating must be calculated for each specific installation, according to the number of units, their position, the position of the observer, the visual field of the observer, etc.

The luminaire concept UGR<19 and the associated UGR table helps the designer or installer to distinguish some luminaires from others quickly but it does not prove UGR<19 in a particular installation. For this, the designer must carry out the appropriate calculations based on what was outlined above:

What should I do if my luminary has been turned off and will not turn on again?



NOTE: Remember to perform the operations with the automatic circuit breakers of the affected lines disconnected so that there is no supply voltage in the affected circuits.

GENERAL ISSUES CONCERNING DIM ADJUSTMENT WITH A TCI DRIVER (DALI//1-10V//PUSH)

Frequently asked questions (FAQ)

Restoring factory settings in luminaires with TCI driver. I have a luminaire connected to a switch but I want to change the dimmer switch for a 1-10V dimmer. Is this possible?

Devices with 1-10V, PUSH and/or DALI dim adjustment, from our provider TCI, have the option of being able to be reset in order to change the function in which they were configured.

In other words, if I have a driver that permits dim adjustment by means of 1-10V and PUSH and I have been using it for a while with a switch and later on I want to change it to a 1-10V dimmer, then it is possible to restore the factory settings so that the new dimmer switch can be connected with a change of function.

For the above, it is important to be aware that:

- The drivers do not in general have a preset function from the ones that are possible given their characteristics. When a dimmer switch is connected when it is powered on for the first time, this dim adjustment mechanism is the one that is set.
- The driver can only dim adjust within the system that is indicated in its specifications. Therefore, if it does NOT feature the option of dim adjusting in a particular system (for example DALI), it will never be able to be adjusted using dimmers for control of that system.
- When you wish to change the configuration of a driver which is being dim adjusted with a specific system in order to use another type of compatible dim adjustment mechanism or when you want to restore the factory settings because these, instead of coming with open configuration, come with a set dim adjustment configuration, the following should be done:

1. Disconnect the system from the mains in order to avoid the risk of electrical contact.
2. Connect the AC 220-240V input cables to the driver (L and N).
3. Make a bridge (short circuit) between the "+" and "-" terminals of the 1-10V dim adjustment control of the driver.
4. Connect the luminaire.
5. Supply the system with power for at least one second.
6. Eliminate the bridge (short circuit) between the "+" and "-" terminals of the 1-10V dim adjustment control of the driver.
7. The light of the luminaire will turn on and the factory settings of the device will be restored and it will be ready to be connected to a new dimmer switch.

(see image on next page)

Image 4. Example connection with driver 3030-33MmA

DIM ADJUSTMENT USING PHASE CUTTING

Characteristics of Dim Adjustment using PHASE CUTTING

- Dim adjustment is done by cutting the waveform from the network at the beginning (leading) or at the end (trailing) of the phase.
- You can do it with different types of dimmer switch (option of using PUSH).
- It can generate noise in the driver.
- At low light intensities, flickering can occur (dimmer switches usually have a minimum selector). The minimum is normally set at 20%.

Conditions for Use

- It only needs L and N power. An additional control cable is NOT necessary.
- The dimmer switch must be LED compatible (from 0/4W - 100/200/… W).
- It is NOT possible to reuse old technology dimmer switches (from 40W to 200/400/… W).
- Dim adjustment recommended from 20 to 100% (below 20% possible presence of flickering)
- It is NOT possible to dim adjust using a rotary dimmer switch from several points when a direct dimmer switch is in place. Several switches in parallel connected to a dim adjustment panel WOULD BE possible.
- Limited use with sensors (it is NOT compatible with twilight sensors, it is generally used with "corridor" function)

Recommendations for Use

- Existing installations where NO wiring can be added.
- When you need to save on dim adjustment.
- Small and basic installations.

PHASE CUT installation diagrams (Trailing = end of phase)

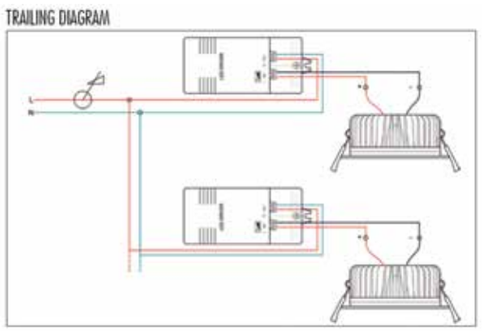


Image 5. Phase Cut connection diagram

Frequently asked questions (FAQ)

How is the TRAILING controller connected?

(See TRAILING installation diagrams on page .)

The TRAILING control does not need additional control wiring for its connection since it connects directly, in series, between the power line and the driver.

This allows for control in zones where it is difficult for the wiring to reach the point of light.

Which controller should I use to control TRAILING luminaries?

The one to use with the TRAILING luminaries supplied by JISO ILUMINACIÓN, SL. must be for **cut-off at the end of phase and compatible with LED technology.** This is extremely important as people usually try to use phase cut-off controllers used for old technology which causes problems with LED technology. These old technology controllers have an operating power range that typically starts at 40W (minimum) up to about 200W-400W (maximum), while LED-compatible phase cut-off controllers have a minimum of 1W and a maximum of over 100W (depending on the device to be used).

When using an end of phase cut-off controller which is not compatible with LEDs, issues such as flicker, no dimming, excessive noise etc., may occur. This is due to the fact that since LED luminaries operate at low power, it is very easy to be below the minimum power of the controller when dimming. For example, if we connect five 10W luminaries (50W in total), with a dimming setting below 80% of the strength, the power consumed would be inferior to 40W and, therefore, would be outside the control range of the mechanism.

On the other hand, the controllers to be used with TRAILING luminaries are usually marked as follows:

Imagen 6. TRAILING and TRAILING & LEADING control symbols

TRAILING: Compatible with control via cut-off at the end of phase.
TRAILING & LEADING: Compatible with control via cut-off at start and/or end of phase.

Finally, it is recommended that the chosen controller feature a selector that allows one to adjust the light intensity to low intensities. This allows you to avoid problems with flickering since we will use the selector to set the minimum in the position immediately before the point where the flickering begins.

Is it possible that the installation with TRAILING control flickers at low light intensities?

Yes.

Due to the characteristics of the type of control that is done, at low intensities, the control via phase-cut-off, both at the beginning and at the end, can generate flicker at low light intensities, which is why the dimmers suitable for this type of control usually feature a selector that allows the minimum level of light control.

To avoid this flickering, the minimum light level should be set at just before the flickering begins.

Is it possible to control LEADING controllable JISO ILUMINACIÓN, SL. products by cutting off at the start of phase?

It depends.

The TRAILING controllable JISO ILUMINACIÓN, SL. products, in some cases, allow for control via cut-off at the beginning and/or end of phase. This depends on the type of product and the driver associated with it.

Generally, when the driver that the luminaries include is TRAILING from the ELT brand, then the driver bears the inscription shown below and is therefore compatible with the two types of control.

Image 7. Symbol of compatibility with TRAILING and LEADING control systems

The adjustable 7W bulbs DO NOT allow for LEADING control.

Is it possible to control this type of luminary with push-button control pads?

It depends.

The drivers compatible with TRAILING control that incorporate JISO ILUMINACIÓN, SL. luminaries can be used, along with control pads (Dinuy RE-PLA-LE1, ELT eDIM or similar), provided that these are compatible with TRAILING controllable LED luminaries (cut-off at end of phase).

Image 8. Push-button control pads compatible with TRAILING drivers

This type of control, by push button, avoids having to add additional wires from the mechanism to the luminary. The wiring is modified in the interior of the mechanism or in the connection box.

These devices can be controlled via several push-buttons in parallel and so, during the design of the installation, consult the technical data sheets to check the characteristics of same as well as their connection requirements.

Can I control using TRAILING dimmers from several points?

NO.

This type of control can only be performed from one point. The only thing possible is, depending on the type of dimmer, to commute the ON/OFF with a conventional switch in such a way that it can be turned on and off and adjusted but from the other points it can only be switched on and off at the last control setting.

To control the TRAILING controllable LED luminaries from several points, see the previous frequently asked question.

Can I control TRAILING dim adjustable luminaires using KNX?

It depends.

It will be possible provided that a KNX-Phase Cut gateway added in the installation and that it allows you to control LED loads with a driver dim adjustable by means of phase cut at the end of the phase

1-10V DIM ADJUSTING

Characteristics of 1-10V Dim Adjusting

- In 1-10V dim adjusting, the driver generates an analogue signal of 1V (minimum) to 10V maximum, which reaches the dimmer switch which modulates it.
- It is possible to do it with different types of dimmer switch (possibility of using PUSH).
- It is possible to connect different types of sensors.
- Dim adjustment is done in a smooth way reducing the chance of flickering occurring. This chance is always very slim when compared to other types of dim adjustment, such as phase cutting, for example.
- DOES NOT generate noise.

Conditions for Use

- Needs L and N power plus two additional cables with "+" and "-" polarity for the analogue signal.
- The dimmer switch must be compatible with LED without indicator lights. The characteristics of the dimmer switch must be taken into account in order to know the maximum number of devices to be connected.
- It is possible to reuse old technology 1-10V dimmers, as long as the manufacturer recommends it.
- Dim adjusts from 1 to 100%. If no dimmer switch with ON/OFF function is added it will NEVER turn off.
- It is NOT possible to dim adjust using a rotary dimmer switch from several points when a direct dimmer switch is in place. Several switches in parallel connected to a dim adjustment panel for 1-10V driver control via switch WOULD BE possible.
- Allows for appropriate use with a variety of twilight sensors, presence detectors, motion detectors, etc.

Recommendations for use

- New or existing installations, in which it is possible to install the control wiring.
- When smooth dim adjustment is needed, generally controlled with rotary dimmer switch, without the presence of flickering.
- When dim adjustment connected to twilight sensors or detectors of presence, movement, etc. is required (educational use, offices...)
- Professional installations.

Installation diagrams 1-10V (BOKE driver)

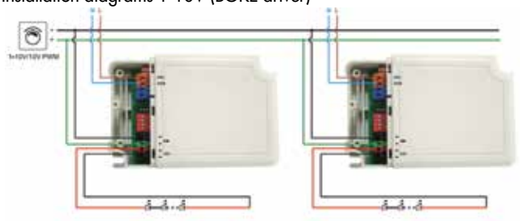


Image 9. Connection diagram 1-10V

Frequently asked questions (FAQ)

To which driver terminals does the 1-10V controller connect?
(See 1-10V installation diagram)

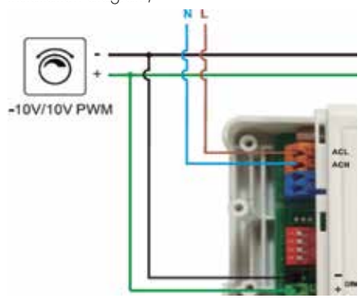


Image 10. Example connection with driver 3042-47MmA

The drivers supplied with 1-10V controllable luminaries have two terminals labelled 1-10V: "+" and "-". These terminals are the ones that must be connected with the control cables coming from the 1-10V controller. Through these cables the controller increases or decreases the light intensity from 1% - 100%.
Depending on the type of controller chosen, to handle the 1-10V control, it will be possible to perform power on and off as well as dimming.
It should be noted that each luminary will have four cables connected to it, one phase (L), one neutral (N), one "+" and one "-" (for 1-10V control).

Can I control using a 1-10V dimmer from several points?
NO.
This type of control can only be carried out from one point. The only thing that is possible, depending on the type of dimmer, is commuting the ON/OFF with a conventional switch, so that from one point it can be turned on, turned off and dimmed but from the other points, you can only turn it on and off at the last setting.

Is it possible to adjust 1-10V dimmable luminaires with a switch via a dim adjustment panel?
It depends.
As long as the panel is compatible with 1-10V dim adjustment for LED loads, it is possible to adjust by means of a switch connected to these panels that allow you to control the 1-10V drivers by means of two control cables plus two power cables and, in addition, to power on and off by means of internal or external relay.

The conditions indicated by the manufacturer of the dim adjustment panels must be respected, ensuring that the proper dim adjustment mechanism is put in place and that no panels of one type are mixed with luminaires of another type.

Can I control 1-10V dimmable luminaires by means of KNX?
It depends.
It is possible as long as a KNX-1_10V gateway for 1-10V dimmable LED loads is added in the installation.

PUSH DIRECT DIM ADJUSTMENT

Characteristics of PUSH Direct Dim Adjustment

- In PUSH direct dim adjustment the driver internally adjusts its potentiometer 1-10V, working in the same way as 1-10V dim adjustment but controlled directly using a switch.
- It must be done with conventional switches (there is NO need for any additional dim adjustment panels).
- Dim adjustment is smooth thereby reducing the chances of flickering occurring. This chance is always very slim when compared to other types of dim adjustment, such as phase cutting, for example.
- Desynchronisation may occur. This is usually reversed and generally by means of keeping it pushed down for a certain length of time or with a certain push sequence.
- DOES NOT generate noise.

Conditions for Use

- It needs L and N power plus a return cable from the switch that is connected to PUSH L (normally). Also, depending on the driver, you may need an additional neutral input as shown in the diagrams.
- The switch must not have an indicator light.
- It is possible to reuse switches provided they are in good condition.
- It is possible to add several switches in parallel for dim adjustment from several points (controlling distances and synchronisation).
- It is possible to add several devices to the same switch. However, the greater the number of devices there are, the greater the possibility of desynchronisation.
- Always follow the instructions from the manufacturer of the driver.
- If you decide to add several devices, the switch return cable must enter each driver in parallel and must not be bridged from one driver to another.
- Dim adjusts from 1 to 100%.

Recommendations for use

- New or existing installations, in which it is possible to install the control wiring.
- In installations where a switch is already in place and the wiring is available.
- When smooth dim adjustment is needed, generally controlled by a switch, without the presence of flickering.
- Small/simple installations but carried out by professionals who have experience with this type of dim adjustment.

Installation diagrams PUSH Direct (BOKE driver)

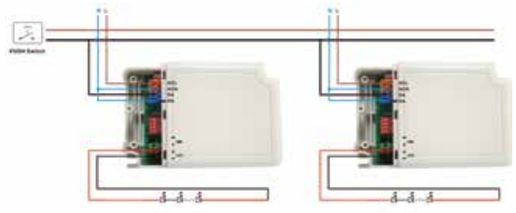


Image 11. PUSH Direct connection diagram

Frequently asked questions (FAQ)

In which terminals of the driver is the switch (PUSH) connected?
(See previous installation diagrams)

IMPORTANT: This type of driver does not need any additional dim adjustment panel. Dim adjustment is done directly in the driver from the impulses generated by the switch.

It is necessary to pass three cables to the luminaires: those indicated in the figure and, in reference numbers with BOKE driver, the neutral will need to be duplicated.

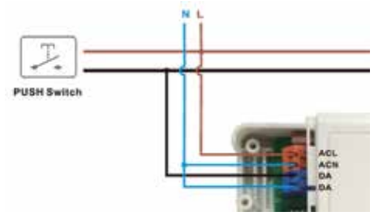


Image 12. Example connection with driver 3042-47MmA

The drivers supplied with the PUSH adjustable luminaires have a terminal identified as PUSH L. This terminal is where the switch return cable must be connected. The switch sends the impulses to the driver through this cable in order to handle switching on and off or the adjustment of the light intensity. In addition to the switch return cable, a continuous supply of power must be connected via the AC input connection (L and N) and, where appropriate, a duplicated neutral input.

Image 13. Example connection with driver 3042-47MmA

How many devices can be connected in a circuit which is adjusted using a switch (PUSH)?

WITH BOKE DRIVER
In this case, the maximum number of drivers connected to the same switch is 20. In the event of desynchronisation, it is possible to re-synchronise by keeping the switch pressed down until the devices' maximum light intensity is reached.

WITH TCI DRIVER
It is not usually recommended that you connect more than four devices per switch. In some cases, when several devices are connected to the same switch, system desynchronisation may occur. This problem can be solved by doing the following:

1. Turn on the devices.
2. Press down the switch for more than one second followed by a press of <1sec.

3. The devices should be turned off.
4. Press down for a longer time and then it will be synchronised again.

Some devices allow for the use of a synchronisation cable (Ref. JISO_3SIN-C1,5 or 3SIN-C4,0) in order to handle the dim adjustment of the devices connected to a switch using the "Master and slave" system. In this way, the switch return would be added to a single driver and the rest would be interconnected from this by means of the synchronisation cable.

With this system it is possible to add up to 10 drivers per circuit (1 master and 9 slaves).

This is an option with the PUSH luminaires that incorporate the drivers with the following reference numbers:
- 3025-43350
- 3030-33MmA
- 3055-33MmA

NOTE: The synchronisation cable is supplied as a separate reference number and should be taken into account when designing the installation.

The "Master and slave" system is also compatible with the following drivers, which are incorporated in the DALI and 1-10V luminaires:

1-10V	DALI
3025-33350	3025-43350
3030-33MmA	3030-43MmA
3055-33MmA	3055-43MmA

Can I install a dim adjustable luminaire to a switch with position indicator?
NO.
The luminaires supplied by JISO ILUMINACIÓN, SL. that incorporate dim adjustable drivers cannot be installed with this type of dimmer switch.

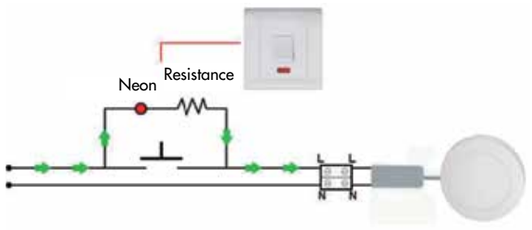


Image 14. Residual current due to switch with indicator light

As shown in the previous figure, when a switch with an indicator light is used, even if it is in the open position, intensity continues to enter the power supply circuit of the downlight. This intensity results in the PUSH function of the driver not working correctly or, directly, not working at all.

How does the switch dim adjust?
The dim adjustable luminaires with the PUSH option enable you to switch ON/OFF and to adjust using a switch without an indicator light.

This dim adjustment is done as follows:
- A short press of the switch turns it on or off.
- A long press increases or decreases the intensity of the light.
- When the long press reaches the minimum or maximum, it stops adjusting.

Can I dim adjust using a switch from several points?
Dim adjustable luminaires with the PUSH option from JISO ILUMINACIÓN, SL. do technically allow for dim adjustment by means of adding several switches in the same circuit but, in this case, it is recommended, wherever possible, to make use of the synchronisation cable in the reference numbers that have this option since, in this way, the risk of desynchronisation is reduced.

For installation with this type of configuration, it must be taken into account that the switch returns will be connected to the PUSH L terminal of the circuit driver(s).

Whenever possible, it is recommended that you dim adjust using a single switch.

My installation with PUSH Direct leaves a remnant of light when it is switched off. How do I fix this?
Dim adjustable luminaires with the PUSH Direct option can on rare occasions give this type of problem. If this occurs, in order to avoid this problem, you should use the 1-10V dim adjustment that this type of luminaire allows, since they incorporate a driver with this other function and, by means of a 1-10V dim adjustment panel for LED, do the dim adjustment with the switch.

It should be borne in mind that the above requires adding another cable since four cables will have to reach each driver instead of three.

DALI

Characteristics of DALI Dim adjustment
– In DALI dim adjustment the driver is controlled digitally by means of specific software that transmits the commands to a DALI controller which transmits them through the DALI protocol to luminaires, blinds, doors, etc.
- It allows you to control different elements of a house from the same point.
- It allows you to control luminaires of the same circuit, jointly or independently. Each luminaire has an address within the system.
- Dim adjustment is done in a specific way and a numerically determined value can be programmed.
- It is possible to control luminaires through this system with sensors, control panels, dimmer switches, etc.
- Each bus (two wires) can manage up to 64 devices in a maximum of 16 groups.
- With DALI, desynchronisation is avoided

Conditions for Use
- Needs L and N power plus two control signal cables.
- The control signal cable needs to be powered from a point (DALI bus).
- Access to the configuration software is necessary.
- The dimmer switches must indicate that they are compatible with the DALI protocol.

Recommendations for Use
- New or existing installations, in which it is possible to install the control cables.
- Installations in which the installer has sufficient knowledge in order to perform the installation and configure it.
- Professional installations in which the client is willing to invest both in the luminaires and in the control systems.
- In installations in which there is already a pre-established home automation and that this is intended to be expanded with the lighting.
- Very professional facilities of a level and kind that require this degree of technology.
- In large installations with centralised control.
- Installations for clients who are conscious of saving energy and caring for the environment.

Installation diagrams DALI (BOKE driver)

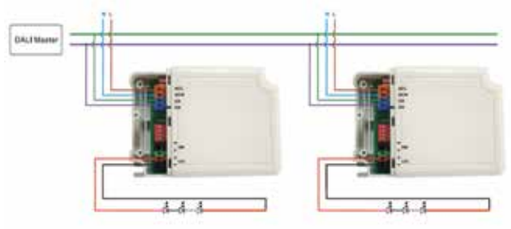


Image 15. DALI connection diagram

Frequently asked questions (FAQ)
In which terminals of the driver does the DALI dimmer switch connect?
(See previous installation diagrams)

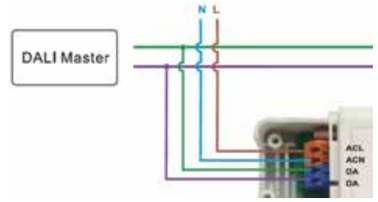


Image 16. Example connection with driver 3042-47MmA

The drivers supplied with the DALI dim adjustable luminaires have two terminals identified as DA (sometimes also as DA 1 and DA 2). These terminals are where the cables from the DALI BUS should be connected.

The following should be taken into account in the options in which the driver, in addition to DALI dim adjustment, also allow for PUSH dim adjustment:
- If the driver is BOKE, the DA terminals become PUSH L and N.
- If the driver is TCI the terminal for this last type of dim adjustment is located next to the AC power supply (L and N) and, therefore, between the DA1 and DA 2 input, and the AC power supply will always remain an intermediate terminal in which nothing will be connected and which will correspond to the PUSH connection.

Is it possible to dim adjust DALI luminaires in an analogue manner?
DALI is a digital and addressable communication interface for lighting systems and so, by definition, it is not possible to use an analogue controller for DALI dim adjustment.

I have purchased a DALI dim adjustable luminaire but I want to use a switch to dim adjust it. Is this possible?
It depends.
JISO ILUMINACIÓN, SL. luminaires which are compatible with DALI dim adjustment systems, depending on the characteristics of the driver that they include, can have, apart from the DALI dim adjustment option, the option of dim adjusting by means of a switch (PUSH) or a 1-10V system.

This option is a feature of the DALI luminaires that incorporate the drivers with the following reference numbers:
- 3042-47MmA
- 3060-47MmA
- 3025-43350
- 3030-43MmA
- 3055-43MmA

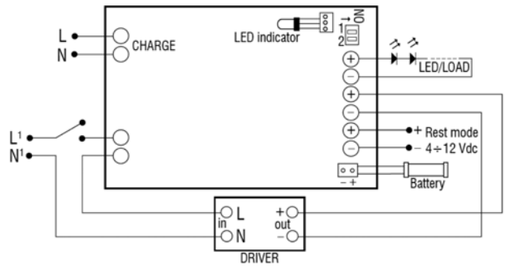
On p. 349 of our catalogue you can check which luminaires the drivers indicated above are used in.

Can I control DALI dim adjustable luminaires using KNX?
It depends.
It will be possible as long as a KNX-DALI gateway is installed in the installation for DALI dim adjustable LED loads.

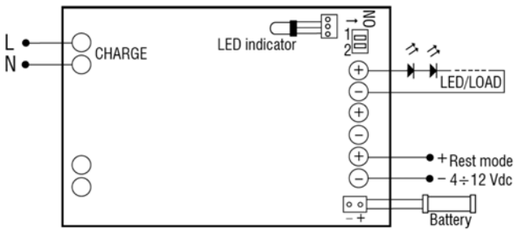
LED LIGHTING COURTESY FOR EMERGENCY CASES

INSTALLATION OF EMERGENCY KIT ASSOCIEATED TO LED LUMINARIES AND LED STRIPS (REF NO: 2DCLEDK1 Y 2DCLEDK2)

PERMANENT USE (the luminary operates normally with its driver and also under specific conditions when there is a general mains failure)



NON-PERMANENT USE (the luminary is installed without a driver and only works under specific conditions when there is a general mains failure)



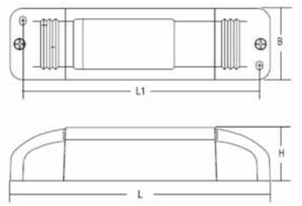
In the frequently asked questions section, you can find information on technical and installation conditions.

IMPORTANT: The LED luminary the emergency kit will be used for must be clearly indicated because when the LED luminary has been supplied by JISO ILUMINACIÓN, SL., additional connector cables may be provided in order to avoid handling of the driver output and the luminary input.

WARNING: The LED luminary set + emergency kit do not make up official emergency units according to regulations. They simply provide you with a back-up luminary of between 3W and 7W when they become activated during failures of the general power supply.

Physical conditions

The units used as an emergency kit (2DCLEDK1 and 2DCLEDK2), as well as the batteries which may be used, have the following dimensions:

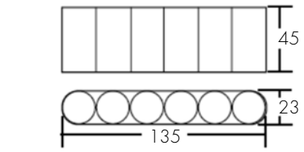


(mm)

L	L1	B	H
166	150	47	35

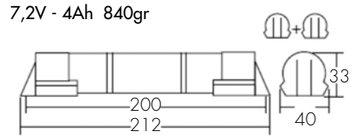
Dimensions of 2DCLEDK1 and 2DCLEDK2

7,2V - 1,6Ah 300gr



Battery 2DCLEDK1 (mm)

7,2V - 4Ah 840gr



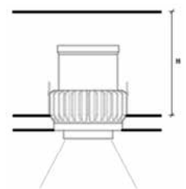
Battery 2DCLEDK2 (mm)

WARNING: Due to the aforementioned, it may be the case that, even if the luminary and the emergency kit are compatible, the unit and/or batteries won't fit the cut-out hole made for the LED luminary, and therefore will not be able to be installed together.

To avoid problems during installation, we urge you to pay attention to the following table of height restrictions of false ceilings in relation to the diameter of the hole. As well as the height restriction, you must allow for lateral access because if the false ceiling has obstacles, it may not be possible to insert the emergency kit.
(See following page)

HOLE DIAMETER (mm)	H ≥ 6cm	H ≥ 8cm	H ≥ 10cm	H ≥ 12cm	H ≥ 16cm
	2DCLEDK1 2DCLEDK2	2DCLEDK1 2DCLEDK2	2DCLEDK1 2DCLEDK2	2DCLEDK1 2DCLEDK2	2DCLEDK1 2DCLEDK2
Ø30 mm (6 #)	NO	NO	NO	NO	NO
Ø73 mm (6 #)	NO	NO	NO	NO	YES
Ø75 mm (6 #)	NO	NO	NO	NO	YES
Ø80 mm (6 #)	NO	NO	NO	NO	YES
Ø90 mm (6 #)	NO	NO	NO	YES	YES
Ø105 mm (6 #)	NO	NO	NO	YES	YES
Ø110 mm (6 #)	NO	NO	YES	YES	YES
Ø125 mm (6 #)	NO	NO	YES	YES	YES
Ø145 mm (6 #)	NO	YES	YES	YES	YES
>Ø165 mm (6 #)	YES	YES	YES	YES	YES

NOTE: *Guideline values. If the hole diameter of your LED luminary is not shown in the table, please check the next lower figure (e.g. for Ø117mm refer to Ø110 mm).*



LED Luminary ceiling installation

Recommendations for Use

The LED luminaire + emergency kit set is not an emergency luminaire according to regulations. It simply allows for courtesy lighting, between 3W and 7W, in situations in which a failure in the general power supply activates the set. It is therefore not recommended for emergency use, according to regulations.

Frequently asked questions (FAQ)

Are any of the JISO ILUMINACIÓN, SL. luminaries compatible with emergency lighting in accordance with regulations?

NO.

JISO ILUMINACIÓN, SL. luminaries are not, in any case, emergency luminaries in accordance with the applicable regulations. However, there is the possibility of connecting the luminaries to an Emergency KIT which allows a reduced illumination to be maintained during a fixed time in case of a general mains failure.

These Emergency Kits consist of a control device, which manages the power supply of the luminary, and one or more NiCd batteries, which accumulate energy to be released in the event of a general mains failure.

These Emergency Kits, depending on the model, can keep supplying power to the luminaries with a power level between 3 and 7W for 1 hour or 3 hours, depending on the battery. In addition, it can be installed in the following two modes:

1. Permanent use (the luminary functions as per usual with its driver and it also functions, under certain conditions, when there is a general mains failure)
(see image on next page)

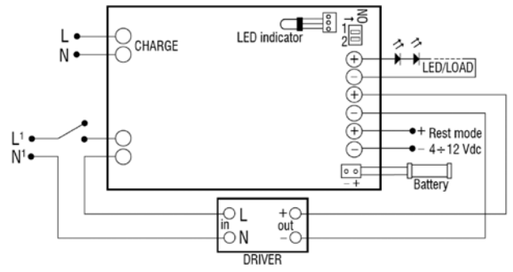


Image 17.Connection diagram Emergency Kit for permanent use

2.2. Non-permanent use (the luminary is installed without a driver and only works, under certain conditions, when there is a general mains failure)

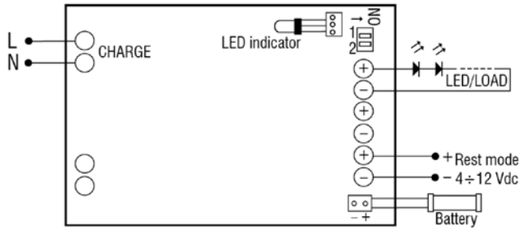


Image 18. Connection diagram Emergency Kit for non-permanent use

I want to add an Emergency Kit to my LED luminary. Are there any limitations with regard to doing this?

Yes.

The LED luminary used cannot have a direct current (DC) voltage that is higher or lower than that indicated in the technical data sheets of the Emergency Kit (request a technical data sheet or look up www.jisoiluminacion.com).

If the voltage does not match that indicated, the LED luminary may not turn on when the mains supply fails and the battery should come into operation.

Models of Emergency Kit also exist which have a maximum voltage selector per option selected (Ref. 2DCLEDK1 and 2DCLEDK2). In these cases, depending on the LED luminary, the selector should be set to the correct position.

	A	B	C	D
	12 V	24 V	48 V	60 V
1	ON	ON	-	-
2	ON	-	ON	-

Image 19. Example of selector settings in Ref. 2DCLEDK1 and 2DCLEDK2

Is it possible to add an Emergency Kit connected to LED strips?

It depends.

YES, this is possible in Ref. 2DCLEDK1 and 2DCLEDK2, but it is conditional on a maximum potential of LED strip installed depending on the voltage of same.

- 12V → 24W
- 24V → 30W

In the case of Ref. 2DCLEDK5, 2DCLEDK6, 2DCLEDK7 and 2DCLEDK8, the limitation of the device is conditional on the operating current, and cannot exceed 2.5A.

Is it possible to add a Courtesy Kit (emergency) connected to waterproof displays with reference number 00420, 00440 or 00450?

NO.

This type of product is not designed to be connected with a Courtesy Kit (emergency) because, due to its design and manner of placement, there is no space available for its coupling.

Is it possible to add a Courtesy Kit (emergency) to installations that operate using an AC supply other than 230V, for example 110V or 277V?

NO.

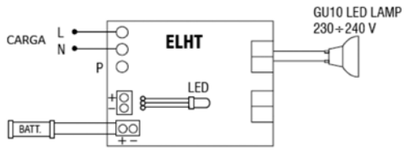
The Courtesy Kits (emergency) that JISO ILUMINACIÓN connects with its luminaires only work with AC power supply between 220-240V.

Is it possible to add a Courtesy Kit (emergency) connected with light bulbs with GU10 base?

YES.

JISO ILUMINACIÓN has two products - Ref.: 1EH-3 (1h) and 1EH-4 (3h) - that allow you to connect GU10 bulbs to 230V from 3 to 8.5W.

Uso NO permanente (sólo emergencia)



Uso permanente (iluminación ordinaria)

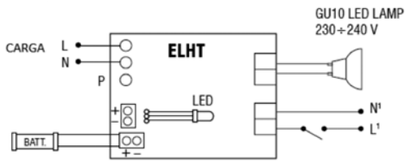


Image 20. Installation examples. 1EH-3 and 1EH-4

MODEL	INTENSIDAD (mA)	MODEL	INTENSIDAD (mA)	MODEL	INTENSIDAD (mA)	MODEL	INTENSIDAD (mA)
10225	NO COMPATIBLE	29120	NO COMPATIBLE	51010	2-ON/1-OFF	54940	2-ON/1-OFF
10233	NO COMPATIBLE	31140	2-ON/1-OFF	51015	1-2-OFF	55011	2-ON/1-OFF
20408	NO COMPATIBLE	31272	2-ON/1-OFF	51022	NO COMPATIBLE	55055	2-ON/1-OFF
20415	NO COMPATIBLE	31640	2-ON/1-OFF	51033	2-ON/1-OFF	55108	1-ON/2-OFF
20422	NO COMPATIBLE	50110	2-ON/1-OFF	51110	2-ON/1-OFF	55115	2-ON/1-OFF
20424	NO COMPATIBLE	50118	1-ON/2-OFF	51115	1-2-OFF	55122	2-ON/1-OFF
20508	NO COMPATIBLE	50126	2-ON/1-OFF	51122	NO COMPATIBLE	56306	1-ON/2-OFF
20515	NO COMPATIBLE	50212	2-ON/1-OFF	51133	2-ON/1-OFF	56312	2-ON/1-OFF
20522	NO COMPATIBLE	50220	1-2-OFF	51533	2-ON/1-OFF	56324	NO COMPATIBLE
20524	NO COMPATIBLE	50308	1-ON/2-OFF	51618	1-2-OFF	56406	1-ON/2-OFF
20408	NO COMPATIBLE	50315	2-ON/1-OFF	51708	1-ON/2-OFF	56412	2-ON/1-OFF
20415	NO COMPATIBLE	50322	1-2-OFF	51715	2-ON/1-OFF	56424	NO COMPATIBLE
20422	NO COMPATIBLE	50330	NO COMPATIBLE	51722	2-ON/1-OFF	59314	2-ON/1-OFF
20424	NO COMPATIBLE	50355	2-ON/1-OFF	51908	1-ON/2-OFF	59325	2-ON/1-OFF
21618	NO COMPATIBLE	50408	1-ON/2-OFF	51915	2-ON/1-OFF	59414	2-ON/1-OFF
24906	NO COMPATIBLE	50415	2-ON/1-OFF	51922	1-2-OFF	59425	2-ON/1-OFF
24918	NO COMPATIBLE	50422	2-ON/1-OFF	53535	2-ON/1-OFF	59528	2-ON/1-OFF
24924	NO COMPATIBLE	50519	1-2-OFF	53550	2-ON/1-OFF	59628	2-ON/1-OFF
26308	NO COMPATIBLE	50608	1-ON/2-OFF	54207	1-ON/2-OFF	59650	2-ON/1-OFF
26314	NO COMPATIBLE	50615	2-ON/1-OFF	54410	2-ON/1-OFF	69314	2-ON/1-OFF
26324	NO COMPATIBLE	50625	2-ON/1-OFF	54415	2-ON/1-OFF	69325	2-ON/1-OFF
26330	NO COMPATIBLE	50708	1-ON/2-OFF	54425	NO COMPATIBLE	69414	2-ON/1-OFF
26408	NO COMPATIBLE	50715	2-ON/1-OFF	54435	2-ON/1-OFF	69425	2-ON/1-OFF
26414	NO COMPATIBLE	50725	2-ON/1-OFF	54906	1-ON/2-OFF	69628	2-ON/1-OFF
26424	NO COMPATIBLE	50915	2-ON/1-OFF	54918	1-2-OFF	69650	2-ON/1-OFF
26430	NO COMPATIBLE	50925	NO COMPATIBLE	54924	NO COMPATIBLE		
29110	NO COMPATIBLE	50930	2-ON/1-OFF	54930	2-ON/1-OFF		

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.

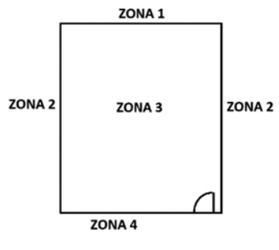
JISO ILUMINACIÓN has a universal remote control (MANDO32) that allows you to determine and programme 4 independent zones either with the same type of dim adjustment control or with different types of dim adjustment. This is done with the universal remote control and with three different types of controllers, 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.
Check the most up to date information on the website: www.jisoiluminacion.com.
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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.

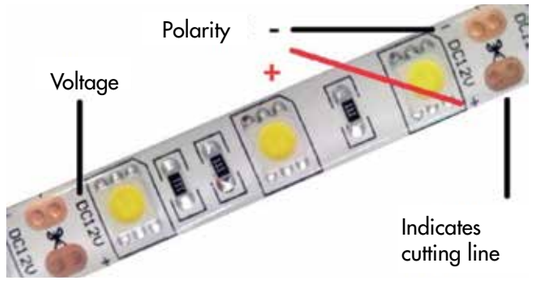


Image 0. LED Strip features

- 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

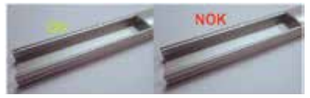


Image 2. Profile cleaning (OK=Correct and NOK="NOT OK"=Incorrect)

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:

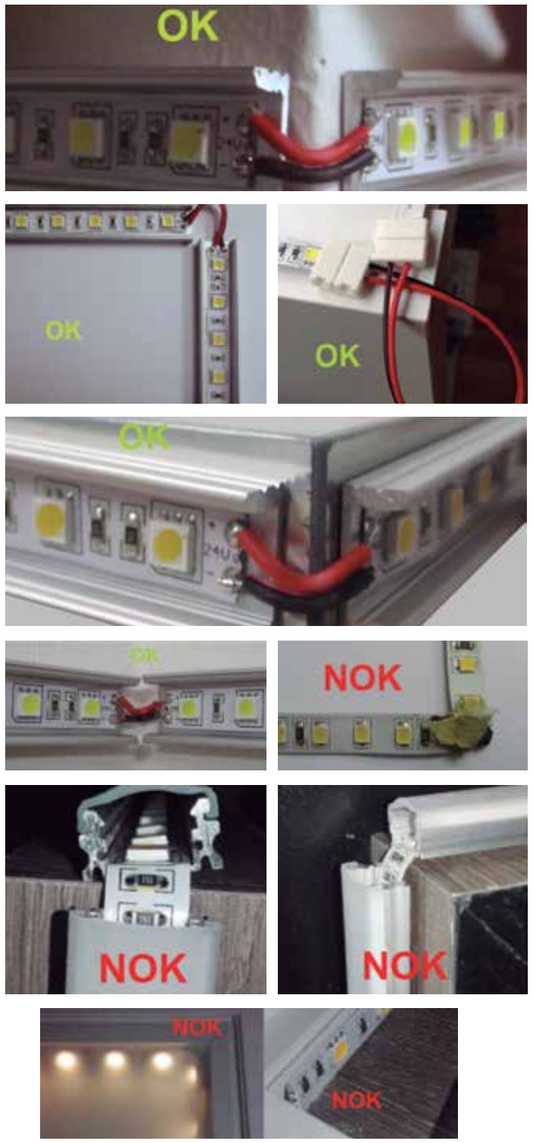


Image 9. Examples of NOK corners, turns and direction changes

- 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.

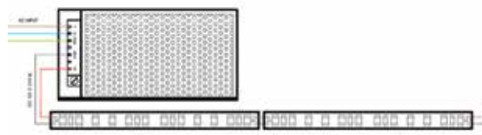
- JISO ILUMINACIÓN, SL. has a range of CONNECTORS/ JUNCTIONS/SPLICES to facilitate the correct and simple performance of same. Various examples of these are shown below:

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

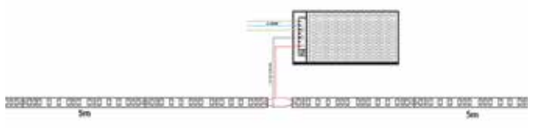
REMINDER: The IP65 LED strip will no longer be classified as such after a connection is performed. In order to maintain its waterproofing capacity, we must apply a sealing product to the connection area. The JISO ILUMINACIÓN, SL. warranty will remain valid as long as said section is ordered with the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

TYPE DIAGRAMS FOR LED STRIP INSTALLATIONS

Monocolor Strip LED



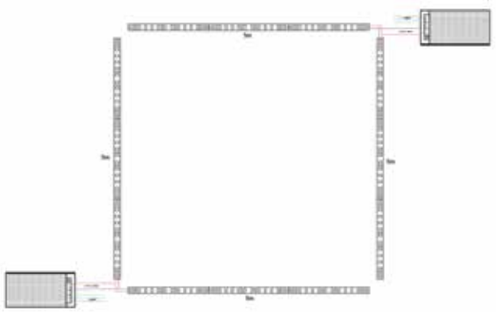
1. Installation 2 monocolor strips to driver.



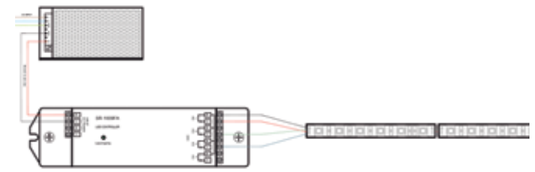
2. Installation basic monocolor+ strip

3. 4 monocolor strips in parallel installation

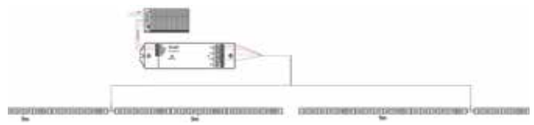
4. Installation of 4 strip lights making a Square shape



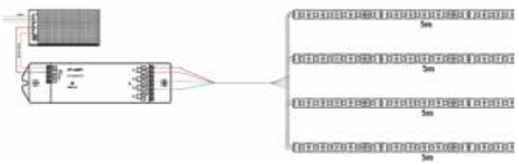
RGB LED STRIP



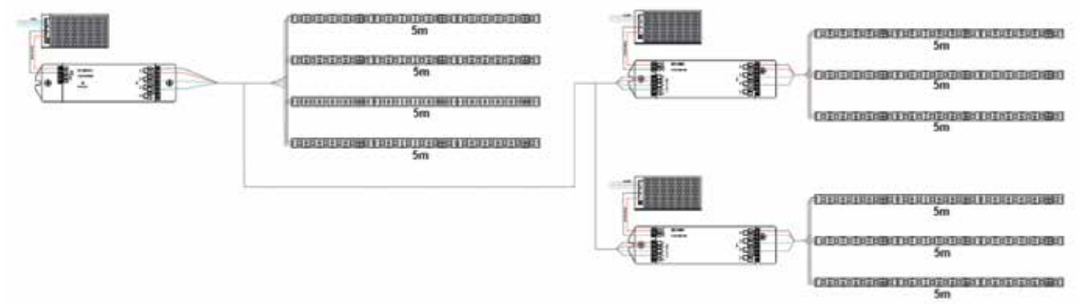
1. Installation of 4 RGB LED RGB



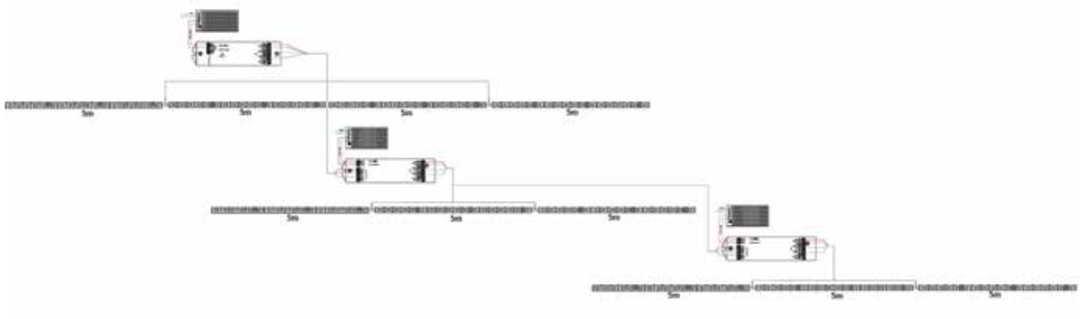
2. 4 RGM Led strips in parallel installation



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.



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

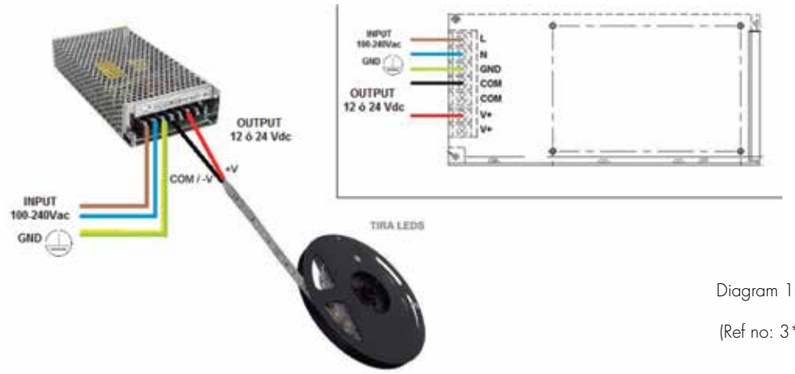


Diagram 1. Standard power supply connection

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

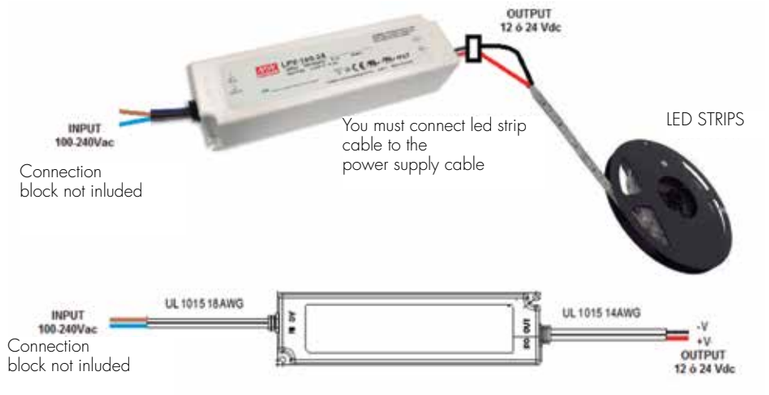
NOTE: For more information, you can request technical data sheets of the selected product or check the website: www.jisoiluminacion.com.

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

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

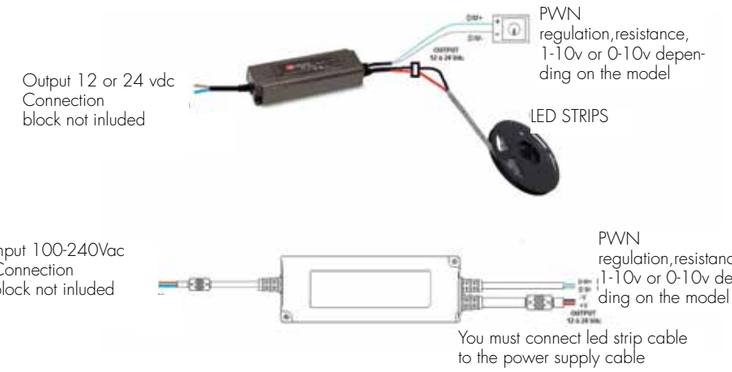


NOTE: For more information, you can request technical data sheets of the selected product or check the website: www.jisoiluminacion.com.

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)

RECESSED MODEL	JISO (-29)	ELT (-22)	ELT TRAILING (-52)	BOKE 1-10V / PUSH / DALI (-47)
10225	N/A	N/A	N/A	N/A
10233	N/A	N/A	N/A	N/A
20408	3008-29320	3010-22350	3010-32350	N/A
20415	3018-29320	N/A	N/A	N/A
20422	3024-29300	N/A	N/A	N/A
20508	3008-29320	3010-22350	3010-32350	N/A
20515	3018-29320	N/A	N/A	N/A
20522	3024-29300	N/A	N/A	N/A
21618	3018-29320	N/A	N/A	N/A
24906	3008-29300	3010-22350	3010-32350	3042-47MmA
24918	3025-29300	3025-22300	3025-32350	3042-47MmA
24924	3024-29320	3025-22300	3025-32350	3042-47MmA
26308	3008-29300	3010-22350	3010-32350	N/A
26314	3018-29350	3016-22350	3016-32350	3042-47MmA
26324	3025-29700	3025-22700	3025-32700	3042-47MmA
26330	3025-29700	3042-22mmA	N/A	3042-47MmA
26408	3008-29300	3010-22350	3010-32350	N/A
26414	3018-29350	3016-22350	3016-32350	3042-47MmA
26424	3025-29700	3025-22700	3025-32700	3042-47MmA
26430	3025-29700	3042-22mmA	N/A	3042-47MmA
29110	N/A	N/A	N/A	N/A
29220	N/A	N/A	N/A	N/A
31140	3040-29102	3042-22mmA	N/A	3060-47MmA
31272	2x3040-29100	2x3042-22mmA	N/A	2x3060-47MmA
31640	3040-29100	3042-22mmA	N/A	3060-47MmA
50110	3010-29280	3010-22350	3010-32350	3042-47MmA
50118	3015-29700	3025-22700	3016-32700	3042-47MmA
50126	3026-29700	3025-22700	3025-32700	3042-47MmA
50212	3012-29300	3010-22350	3011-32300	3042-47MmA
50220	3020-29320	3025-22300	3025-32350	3042-47MmA
50308	3008-29300	3010-22350	3010-32350	3042-47MmA
50315	3018-29300	3025-22300	3016-32350	3042-47MmA
50322	3024-29320	3025-22300	3025-32350	3042-47MmA
50330	3036-29300	N/A	N/A	N/A
50355	3055-29150	N/A	N/A	3060-47MmA
50408	3008-29300	3010-22350	3010-32350	3042-47MmA
50415	3018-29300	3025-22300	3016-32350	3042-47MmA
50422	3024-29540	3025-22600	N/A	3042-47MmA
50519	3020-29320	3025-22300	3025-32350	3042-47MmA
50520	3020-29320	3025-22300	3025-32350	3042-47MmA
50608	3008-29300	3010-22350	3010-32350	3042-47MmA
50615	3018-29300	3025-22300	3016-32350	3042-47MmA
50625	3025-29700	3025-22700	N/A	3042-47MmA
50708	3008-29300	3010-22350	3010-32350	3042-47MmA
50715	3019-29320	3025-22300	3016-32350	3042-47MmA

RECESSED MODEL	JISO (-29)	ELT (-22)	ELT TRAILING (-52)	BOKE 1-10V / PUSH / DALI (-47)
50725	3025-29600	3025-22600	N/A	3042-47MmA
50915	3018-29300	3025-22300	3016-32350	3042-47MmA
50925	3024-29320	3025-22300	3025-32350	3042-47MmA
50930	3036-29850	3042-22MmA	N/A	3060-47MmA
51010	3010-28350	3025-22350	N/A	3042-47MmA
51015	3018-29300	3025-22300	N/A	3042-47MmA
51022	3024-29320	3025-22300	N/A	3042-47MmA
51033	3040-29850	3042-22mmA	N/A	3060-47MmA
51110	3010-28350	3025-22350	N/A	3042-47MmA
51115	3018-29300	3025-22300	N/A	3042-47MmA
51122	3024-29320	3025-22300	N/A	3042-47MmA
51133	3040-29850	3042-22mmA	N/A	3060-47MmA
51533	3036-29850	3042-22mmA	N/A	3060-47MmA
51618	3018-29300	3025-22300	3025-32350	3042-47MmA
51708	3008-29300	3010-22350	3010-32350	3042-47MmA
51715	3018-29300	3025-22300	3016-32350	3042-47MmA
51722	3024-29540	3025-22600	N/A	3042-47MmA
51908	3008-29300	3010-22350	3010-32350	3042-47MmA
51915	3018-29300	3025-22300	3016-32350	3042-47MmA
51922	3024-29320	3025-22300	3025-32350	3042-47MmA
53527	N/A	3042-22mmA	N/A	3042-47MmA
53535	N/A	3042-22mmA	N/A	306047MmA
53550	3048-28120	N/A	N/A	3060-47MmA
54207	3008-29300	3010-22350	3010-32350	3042-47MmA
54410	3012-29300	3010-22350	3010-32350	3042-47MmA
54415	3018-29300	3025-22300	3016-32350	3042-47MmA
54425	3025-29300	3025-22300	3025-32350	3042-47MmA
54435	3036-29830	3042-22mmA	N/A	3060-47MmA
54906	3008-29300	3010-22350	3010-32350	3042-47MmA
54918	3025-29300	3025-22300	3025-32350	3042-47MmA
54924	3024-29320	3025-22300	3025-32350	3042-47MmA
54930	3036-29700	3042-22mmA	N/A	3042-47MmA
54940	N/A	3042-22mmA	N/A	3060-47MmA
55011	3010-29250	3010-32300	3010-32300	3042-47MmA
55055	3055-29120	N/A	N/A	3060-47MmA
55108	3008-29300	3010-22350	3010-32350	3042-47MmA
55115	3018-29300	3025-22300	3025-32350	3042-47MmA
55122	3036-29700	3042-22mmA	N/A	3042-47MmA
56306	3008-29300	3010-22350	3010-32350	3042-47MmA
56312	3012-29300	3025-22300	3016-32350	3042-47MmA
56324	3024-29320	3025-22300	N/A	3042-47MmA
56406	3008-29300	3010-22350	3010-32350	3042-47MmA
56412	3012-29300	3025-22300	3016-32350	3042-47MmA
56424	3024-29320	3025-22300	N/A	3042-47MmA
59314	N/A	3025-22300	3016-32350	3042-47MmA

RECESSED MODEL	JISO (-29)	ELT (-22)	ELT TRAILING (-52)	BOKE 1-10V / PUSH / DALI (-47)
59325	N/A	3025-22600	N/A	3042-47MmA
59414	N/A	3025-22300	3016-32350	3042-47MmA
59425	N/A	3025-22600	N/A	3042-47MmA
59528	N/A	2 x 3025-22300	2 x 3016-32350	2 x 3042-47MmA
59628	N/A	2 x 3025-22300	2 x 3016-32350	2 x 3042-47MmA
59650	N/A	2 x 3025-22600	N/A	2 x 3042-47MmA
69314	N/A	3025-22300	3016-32350	3042-47MmA
69325	N/A	3025-22600	N/A	3042-47MmA
69414	N/A	3025-22300	3016-32350	3042-47MmA
69425	N/A	3025-22600	N/A	3042-47MmA
69628	N/A	2 x 3025-22300	2 x 3016-32350	2 x 3042-47MmA
69650	N/A	2 x 3025-22600	N/A	2 x 3042-47MmA

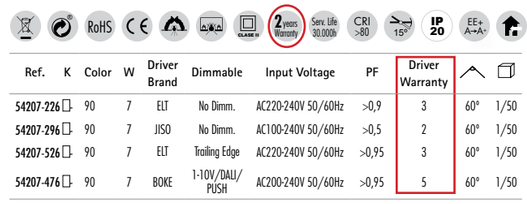
INTERPRETATION OF THE WARRANTY

Depending on the product, JISO ILUMINACIÓN, S.L. offers different periods of warranty (2, 3 or 5 years) that may affect to the complete product or just to the driver that goes incorporated. However, it must be pointed out that the 3 or 5 years warranty are not added to the 2 years basic warranty that has the fitting. During the first 2 years all the articles have the same warranty conditions. From the 3rd year, (we add 1 year in case of 3 years or 3 years in case of 5 years) the warranty is enlarged but with particular conditions.

This information can be identified in the line of icons shown in the sheet where you will find also the table of specifications, with 2 years of warranty minimum.

Therefore you will find, in picture 1, the icon regarding to the warranty period (2, 3 or 5 years) and, in picture 2, the column where it is shown the commercial warranty of the driver according the features of the driver used.

Picture 1. Icons to identify the warranty period of each product



Ref.	K	Color	W	Driver Brand	Dimmable	Input Voltage	PF	Driver Warranty		
54207-226	90	7	ELT	No Dimm.	AC220-240V 50/60Hz	>0,9	3	60°	1/50
54207-296	90	7	JISO	No Dimm.	AC100-240V 50/60Hz	>0,5	2	60°	1/50
54207-526	90	7	ELT	Trailing Edge	AC220-240V 50/60Hz	>0,95	3	60°	1/50
54207-476	90	7	BOKE	1-10V/DALI/ PUSH	AC200-240V 50/60Hz	>0,95	5	60°	1/50

Picture 2. Table of features where it is possible to identify the commercial warranty of the driver and the icon of the warranty

In picture 2 is possible to see the icon for 2 years warranty products but, in the column of the driver warranty, in reference 50212-228_-__, for example, it is indicated 3 years. This must be understood as 2 years warranty of the complete product (fitting an driver), with the conditions established in the Certificate of Warranty (constantly updated at the website of JISO ILUMINACIÓN, S.L.), but the driver has a 3 years Commercial Warranty, according particular conditions indicated in the Certificate of Commercial Warranty of the Driver (constantly updated in the website of JISO ILUMINACIÓN, S.L.). Therefore, the product will have a warranty applied to the set and a commercial warranty applied to the driver, with specific conditions, depending on the driver or depending on the product.

Warranty policy is subject to the conditions provided at the website of JISO ILUMINACIÓN S.L. (www.jisoiluminacion.com/Garantia), where it can be found the most updated information. Besides, ILUMINACIÓN S.L. reserves the right to make modifications at any time and without prior notice.

M18-082-01

8 435325 817736

Reference	Page	Watts	Lumens	Degree	IP	Diam.	Cut	Type	Installation	Tecnology
00203	75	3	320	30	20	60	45	swivel	recessed	LED COB
00420	276	20	1799	120	65	580*80*70	-	fixed	surface	LED SMD
00440	277	40	3478	120	65	1180*80*70	-	fixed	surface	LED SMD
00450	277	50	4712	120	65	1480*80*70	-	fixed	surface	LED SMD
710	214	-	-	-	44	2 m.	-	profile	surface	w/o technology
712	216	-	-	-	44	2 m.	-	profile	surface	w/o technology
713	223	-	-	-	44	2 m.	-	profile	recessed	w/o technology
714	217	-	-	-	44	2 m.	-	profile	surface	w/o technology
715	218	-	-	-	44	2 m.	-	profile	surface	w/o technology
719	222	-	-	-	44	2 m.	-	profile	surface/recessed	w/o technology
720	215	-	-	-	44	2 m.	-	profile	surface	w/o technology
721	220	-	-	-	44	2 m.	-	profile	surface	w/o technology
722	221	-	-	-	45	3 m.	-	profile	surface	w/o technology
723	219	-	-	-	46	4 m.	-	profile	surface	w/o technology
724D	255	2x12V max.50W	-	-	20	172*92	160*82	adjustble	recessed	w/o technology
754	225	-	-	-	44	2 m.	-	profile	surface	w/o technology
765	213	-	-	-	65	2 m.	-	profile	surface	w/o technology
767	224	-	-	-	44	2 m.	-	profile	surface	w/o technology
00810	278	10	712-737	100	65	115*135*40	-	swivel	surface	LED SMD
00820	278	20	1424-1772	100	65	154*182*45	-	swivel	surface	LED SMD
00830	279	30	2136-2250	100	65	194*230*55	-	swivel	surface	LED SMD
00850	279	50	3324-3976	100	65	240*286*62	-	swivel	surface	LED SMD
00901	74	1	65-80	30	20	33	25	fixed	recessed	LED COB
931D	258	12V máx.50W	-	-	20	169	150	directional	recessed	w/o technology
941D	259	12V máx.50W	-	-	20	170*170	150	directional	recessed	w/o technology
05150	283	150	21240-22062	120	65	380	-	fixed	pendant	LED SMD
05250	284	250	29000	120	65	480	-	fixed	pendant	LED SMD
08100	280	100	7123-7624	100	65	289*289*90	-	swivel	surface	LED SMD
08150	280	150	10677-11246	100	65	335*314*99	-	swivel	surface	LED SMD
08200	281	200	17464-18383	100	65	370*370*123	-	swivel	surface	LED SMD
10225	145	25	2233-2350	60	20	155*170	-	directional	trimless	LED COB
10233	145	33	3183-3350	60	20	168*170	-	directional	trimless	LED COB
20408	136	8	415-434	120	33	120*120	-	fixed	surface	LED SMD
20415	136	15	887-949	120	33	180*180	-	fixed	surface	LED SMD
20422	137	22	1518-1597	120	33	220*220	-	fixed	surface	LED SMD
20508	133	8	455-476	120	33	120	-	fixed	surface	LED SMD
20515	134	15	937-969	120	33	180	-	fixed	surface	LED SMD
20522	135	22	1692-1773	120	33	220	-	fixed	surface	LED SMD
21618	132	18	1493	120	23	225	-	fixed	surface	LED SMD
24906	139-299	6	280	120	20	105	-	fixed	Surface	LED SMD
24918	140-300	18	982	120	20	173	-	fixed	Surface	LED SMD
24924	141-301	24	1307	120	20	230	-	fixed	Surface	LED SMD
26308	125	8	715-753	120	44	120	-	fixed	Surface	LED SMD
26314	125	14	1333-1403	120	44	170	-	fixed	Surface	LED SMD
26324	126	24	2270-2390	120	44	225	-	fixed	Surface	LED SMD
26330	127	30	2531-2665	120	44	300	-	fixed	Surface	LED SMD
26408	128	8	715-753	120	44	120*120	-	fixed	Surface	LED SMD
26414	129	14	1279-1347	120	44	170*170	-	fixed	Surface	LED SMD
26424	130	24	2237-2355	120	44	225*225	-	fixed	Surface	LED SMD
26430	131	30	2567-2702	120	44	300*300	-	fixed	Surface	LED SMD
29110	122	10	845	38	20	65*170	-	swivel	Surface	LED COB
29220	123	20	2027	38	20	65*170	-	swivel	Surface	LED COB
29312	121	12	915-960	38	23	60	-	directional	surface	LED COB
31140	151	40	3400	120	44	295*1195	-	fixed	surface	LED SMD
31272	153	72	5750	120	44	595*1195	-	fixed	Surface	LED SMD
31640	149	40	3565	120		595*595	-	fixed	surface	LED SMD
50110	30	10	801-1000	90	65	100	90	fixed	recessed	LED SMD
50118	30	18	1531-1890	90	65	147	125	fixed	Recessed	LED SMD
50126	31	26	2515-2570	90	65	233	205-220	fixed	recessed	LED SMD
50212	80	12	771-823-851	100	44	175	140-160	fixed	recessed	LED SMD
50220	80	20	1519-1561-1615	100	44	225	190-210	fixed	recessed	LED SMD
50308	91	8	455-476	120	44	120	105	fixed	recessed	LED SMD
50315	91	15	937-969	120	44	180	165	fixed	recessed	LED SMD
50322	92	22	1692-1773-1815	120	44	220	200	fixed	recessed	LED SMD
50330	93	30	2045-2156	120	44	300	285	fixed	recessed	LED SMD
50355	155	55	3020-3047	120	44	600	585	fixed	recessed	LED SMD
50408	94	8	415-434	120	44	120*120	105*105	fixed	recessed	LED SMD
50415	94	15	887-949	120	44	180*180	165*165	fixed	recessed	LED SMD
50422	95	22	1518-1597-1692	120	44	220*220	210*210	fixed	recessed	LED SMD
50519	81	20	1600	100	44	215*215	200	fixed	recessed	LED SMD
50520	81	20	1600	100	44	250*250	240	fixed	recessed	LED SMD
50608	102	8	478-522	110	44	100	90	fixed	recessed	LED SMD