

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)

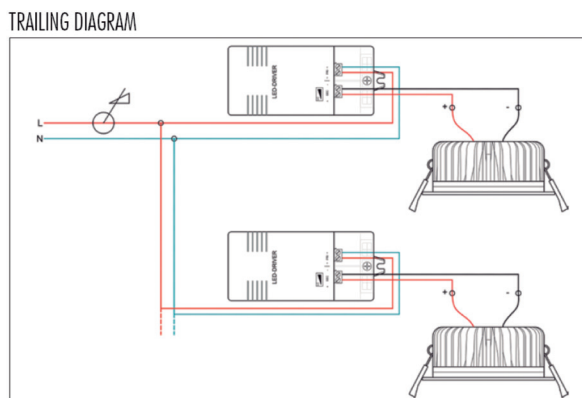


Image 5. Phase Cut connection diagram

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