eldoLED

your product | *our drive*

Application note — Motion sensor

eldoLED drivers to which this application note applies include:

12-48VDC LED drivers	120-277VAC LED drivers
ECOdrive DC 15D, 30D, 45D POWERdrive DC 45D, 90D, 180D LINEARdrive 100D, 180D, 720D	POWERdrive 106 LINEARdrive 100

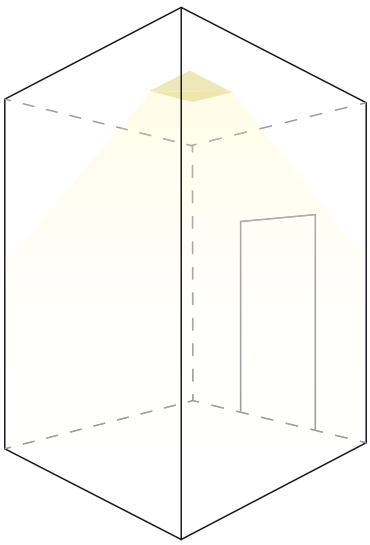
eldoLED 12-48VDC and 120-277VAC LED drivers featuring Ext in (external input) connectors allow the connection of a motion sensor. With a motion sensor you can create automated, local light response triggered by motion.

This document describes a sample LED lighting application in which a motion sensor triggers a certain behavior. It lists information on:

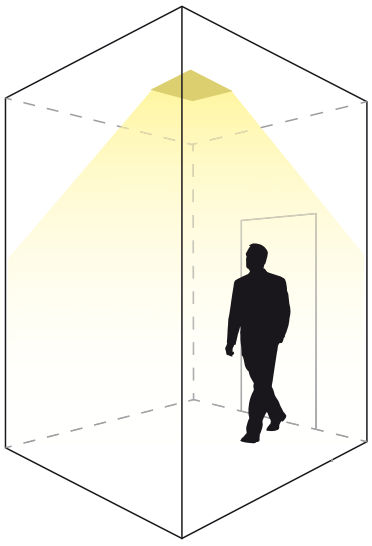
- **how to configure the driver for use with a motion sensor**
- **wiring diagram and schematic detailing the connection of a PIR (Passive Infra Red) motion sensor to your eldoLED driver**
- **how to use the TOOLbox and TOOLbox PC software to design the action triggered by detected motion**

Application

In this sample application the light in a room is at a very low level (5% light output) as long as no motion is detected.
As soon as motion is detected in the room, the light output is increased to 100%.



No motion: 5% light output



Motion detected: light output is increased to 100%

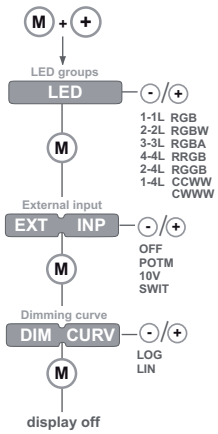
Driver configuration

Via the driver's user interface, prepare the driver for use with the motion sensor and set the driver's mode of operation to Show:

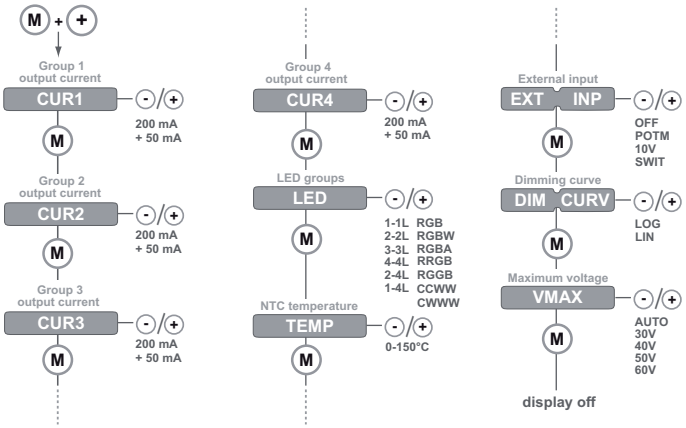
1. Simultaneously press M and +. This will activate the setup menu.

2. Press M a number of times to go through the various setup items until you reach "EXP INP" (external input).
   On the next page, some sample setup menus are depicted. For the LINEARdrive 180D, pressing M once will get you to the EXT INP menu item, for the POWERdrive 180D you need to press M six times. Refer to the Menu Structure quick start guide for your driver for more information (www.eldoled.com/quickstartguide).

© 2012 eldoLED. All rights reserved. V1.0



Setup menu for LINEARdrive 180D



Setup menu for POWERdrive 180D

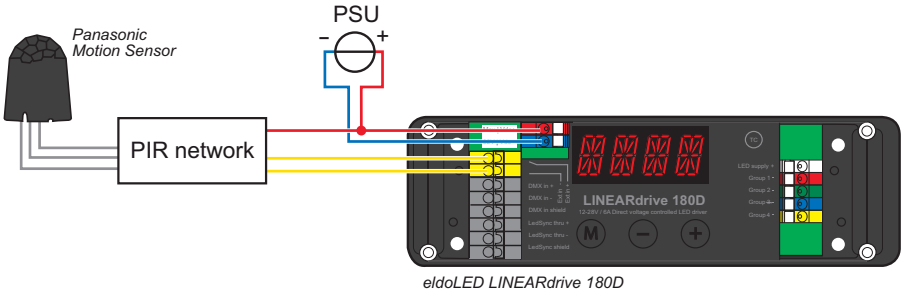
3. At “EXP INP” (external input), press + or - until the display shows “SWIT” (switch). Press M to save the setting.

4. Leave the menu. You can do this by either pressing M a number of times until the display turns off, or by refraining from pressing any menu buttons for at least 8 seconds, which will also turn off the display.

5. Press M for 5 seconds to set the mode of operation. Press the + or - button to select “SHOW”, and press M to save the setting.

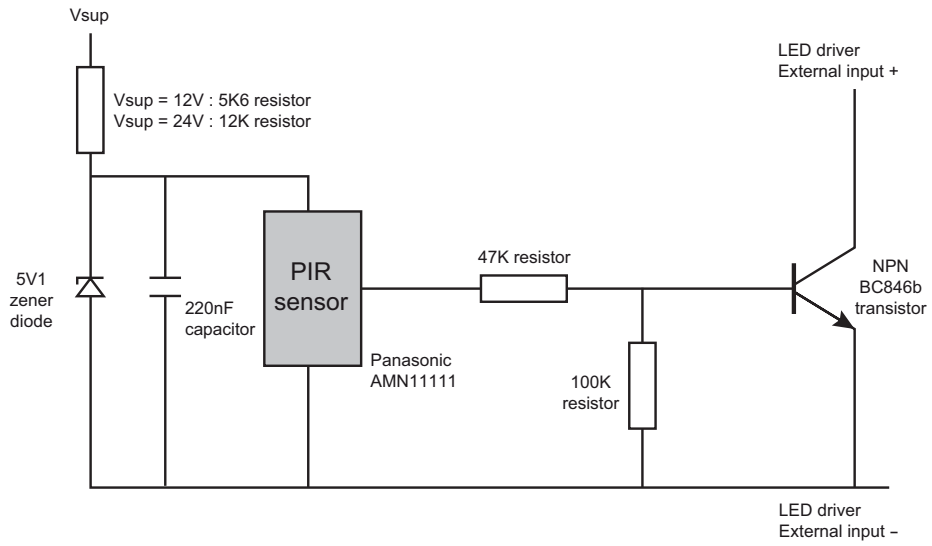
Wiring diagram

The diagram below shows how to connect the Panasonic motion sensor to the ‘Ext in’ connectors of the driver, and how to use the same PSU (power supply unit) for both the driver and the PIR network.



Connecting motion sensor to your LED driver

The diagram below shows how to create the PIR network and which resistors, zener diode, capacitor and transistor to use.



PIR network schematic

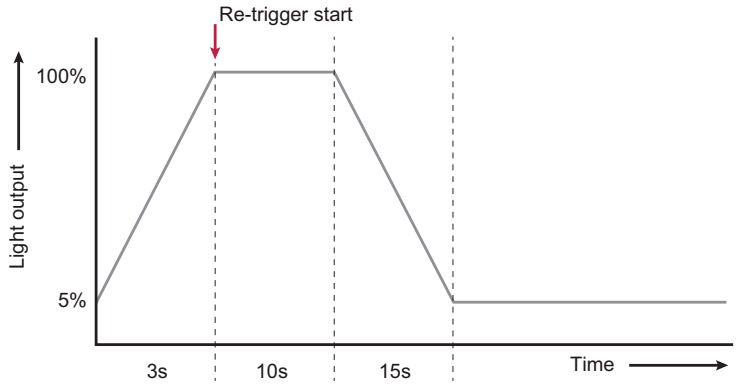
© 2012 eldoLED. All rights reserved. V1.0

Motion detection timing

You need to define the timing for the increase and decrease of light output triggered by the detection of motion and absence of motion.

For instance, in this application example you may want the driver to increase the light output to 100% in 3 seconds time as soon as motion is detected. The light output should remain at 100% as long as motion is detected. Then, as soon as no more motion is detected, you want it to stay at 100% light output for at least 10 seconds before it dims down from 100% light output to 5% light output over a 15 second time period.

Create your own timing scheme according to the requirements of the lighting application. Based on the timings of your application, you will be creating show sequences for the driver (see 'Creating and uploading show sequences').



Timing graph

Creating and uploading show sequences

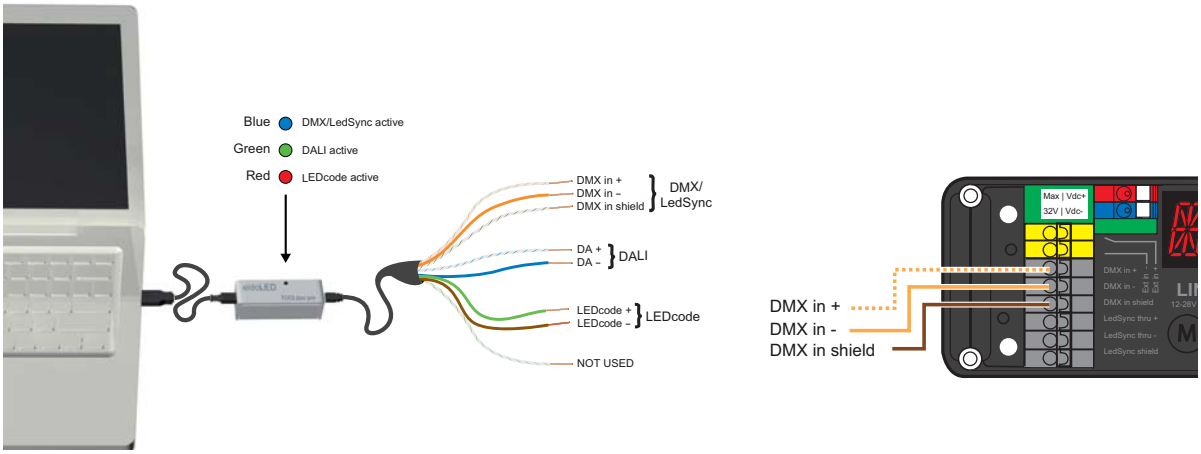
To configure the driver for the required action when motion is detected/no longer detected, you need to

1. Download the TOOLbox PC software from www.eldoled.com/software and install it on your PC as described in the TOOLbox PC software user manual at www.eldoled.com/userguide.

2. Connect the driver to a TOOLbox, and connect the TOOLbox to the PC on which you have installed the TOOLbox PC software. A UTP cable and USB-to-miniUSB cable are supplied with the TOOLbox.

   Use the USB cable to connect the TOOLbox to the PC.

   Use the UTP cable to connect the TOOLbox to the driver.
   Cut off one of the cable's RJ45 connectors and strip 4 cm / 2 inch of insulation material off the cable end. Then, select the orange/white, orange and brown wire and apply a 9mm strip length. Connect the UTP cable's orange/white wire to the driver's DMX in+ connector, the orange wire to the DMX in- connector, and the brown wire to the DMX shield connector.



© 2012 eldoLED. All rights reserved. V1.0

3. Start the TOOLbox PC software and in the ShowMaster tab, define the show sequences and upload them to the driver:

   Show 1 represents the required light output as long as the motion sensor does not detect any movement:

Scene	Red	Green	Blue	White	Scene time	Fade time
1	5%	5%	5%	5%	1s	3s

   Show 2 represents the required action when motion is detected by the sensor. As long as movement is detected, the sensor will constantly retrigger the “Alternate show” (Show 2 in this case) to be started over and over again, meaning the light output remains at 100% (scene 1 of show 2). As soon as no more motion is detected during 10 seconds (scene time of scene 1), scene 2 of show 2 is started, where the light output is decreased again over a time span of 15 seconds :

Scene	Red	Green	Blue	White	Scene time	Fade time
1	100%	100%	100%	100%	10s	15s
2	5%	5%	5%	5%	52224s	3s

4. Make the following changes in the Config tab of the TOOLbox PC software:
   - set parameter 1 ”Show index” to 1 (show 1)
   - set parameter 5 “Show running or stopped” to 0 (running)
   - set parameter 6 “Switch: mode” to 7 (restart alternative show)
   - set parameter 8 “Switch: alternate show” to 2 (show 2)

Europe, Rest of World
eldoLED Europe bv
Luchthavenweg 18a
NL-5657 EB Eindhoven
The Netherlands
T: +31 40 2054050
F: +31 40 2054058

North America
eldoLED America, Inc.
1762 Technology Drive #226
San Jose, CA 95110
USA
T: +1 408 451-9333
F: +1 408 451-9335

Sales support US/Canada: nasales@eldoled.com
Sales support Rest of the World: sales@eldoled.com

Other documentation and support
Visit www.eldoled.com/support for further documentation such as quick start guides, wiring diagrams, tech sheets and 3D IGES files.

Warranty
eldoLED represents and warrants that for a period of 3 (three) years, as of the date of invoice, Products materially meet the specifications and specifically agreed upon quality, both as stated in the applicable datasheet and/or written design-in specifications, or as stated in writing otherwise by eldoLED, provided that these specifications are explicitly designated by eldoLED as "warranted specifications".
For the complete warranty text, visit www.eldoled.com/terms.

© 2012 eldoLED. All rights reserved. V1.0