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DRL-60-230

Laser distance sensor,
230 V



Do not dispose of this device in the trash along with other waste!

According to the Law on Waste, electro coming from households free of charge and can give any amount to up to that end point of collection, as well as to store the occasion of the purchase of new equipment (in accordance with the principle of old-for-new, regardless of brand). Electro thrown in the trash or abandoned in nature, pose a threat to the environment and human health.



Purpose

The DRL-60-230 is a laser sensor designed to control lighting, especially in corridors and staircases.

As the control element here is a separated relay contact, this sensor can also be used for integration into any home automation system.

The principle of operation is to emit a light beam and measure the delay of returning light as a result of reflection from an obstacle. On this basis, it is possible to precisely determine the distance to the obstacle, which is then compared with the set detection range.

The condition for switching on the light is the presence of an obstacle at a distance smaller than the set detection range and a brightness level below the value set on the sensor.

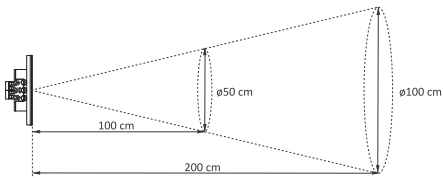
This solution is perfect for switching on lighting circuits for example on open stairs, where it is important that the sensor detects presence only on the stairs and ignores everything that happens outside.

Features

- » Laser distance sensor of the ToF (Time of Flight) type;
- » The detection range can be smoothly adjusted in the range of 0.1 to 2 m;
- » A brightness sensor that prevents the light from being switched on when the brightness level is high;
- » Adjustable time of keeping the light on;
- » Separated relay output for direct control of 230 V circuits, or integration into any home automation system;
- » Possibility of direct control of electrical circuits with a load of up to 8 A (AC-1);
- » Compact size, can be mounted in a $\varnothing 60$ mm box;
- » LED indicating the operating status of the sensor;
- » Thermal protection against exceeding the acceptable temperature inside the housing.

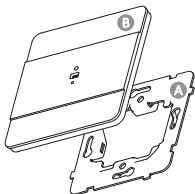
Mounting

1. The location of the mounting of the sensor should be selected in such a way that no fixed obstacles such as floor, wall, staircase step, etc. can be found in the detection cone of the sensor at the assumed operating distance. The diameter of the detection cone, depending on the set operating distance, can be read from the following figure:



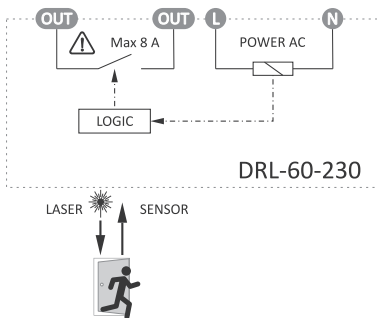
Failure to observe safety distances may lead to unwanted sensor excitation.

2. Do not mount the sensor with the front-facing a strong light source, as this may lead to incorrect operation of the distance and light intensity measurement system.
3. Do not mount sensors opposite each other or mirrors, as this can lead to unwanted sensor excitation.
4. Prepare a hole for the installation box $\varnothing 60$ mm. **The minimum recommended depth of the box is 30 mm.**
5. The sensor consists of 2 elements connected together by magnets: mounting frame A and sensor B.



6. Attach the mounting frame to the box using screws or claws.
7. Connect the DRL-60-230. For direct control of the lighting, the connection diagram shown later in this manual can be used. For integration with home automation controllers, follow the documentation of the devices to be integrated.
8. Use the dials to set the operating parameters of the detector: detection range, level of brightness below which switching will occur and switching time of the light.
9. Slide the detector into the box and press it onto the mounting frame. The magnets in the detector will prevent the detector from pulling out automatically.

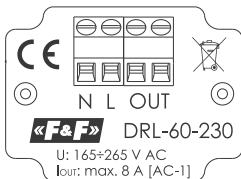
Block diagram



Description of control terminals



The sensor is designed for a power supply of 165÷265 V AC.



Terminal

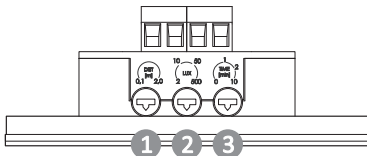
Function

N Sensor supply - neutral wire

L Sensor supply - phase wire

OUT Output relay contact

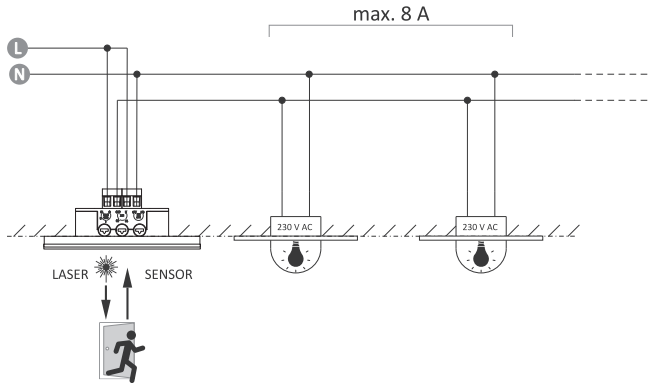
Settings



No.	Knob	Range	Function
1	DIST	0.1÷2.0 m	Setting the sensor detection range. If an obstacle appears at a distance shorter than that set by the knob, the lighting will be switched on (if the illumination condition is also met).
2	LUX	2÷500 Lx	Brightness level setting. If the light intensity is lower than the value set by the knob, the light will switch on when the presence is detected in the detection area.
3	TIME	0÷10 min.	Lighting support time. The light will switch on when presence is detected in the detection area, the countdown time will start when there is no more obstacle in the detection area.

Connection diagram

Direct connection of 230 V lighting



When it is necessary to control a load higher than 8 A, or a load with a high starting current, it is recommended to use external contactors or relays adapted to current surges (e.g. PP-1Z-LED 230 V). In this case, the DRL-60-230 switches an external relay to whose contacts the controlled load is connected.

Signalisation

The DRL-60-12 sensor is equipped with an LED on the front of the device, which indicates the operating status of the device:



Sensor on standby, no obstacles in the detection area. The standby indication is active for the first minute after the unit is powered up.



An obstacle in the detection area has been detected. The light was not switched on because the brightness level was too high.



An obstacle in the detection area has been detected. The light is on.



Signalling that the acceptable temperature inside the sensor is exceeded. Sensor operation is blocked until the fault has been removed.



Too high temperature can be caused by connecting a too high load to the sensor.



The brightness level of the signal LED adjusts to the ambient brightness (high ambient brightness – high LED brightness level). When an overtemperature is indicated, the light flashes at maximum brightness.

Technical data

power supply	165÷265 V AC
maximum load current	8 A
detection range (adjustable)	0.1÷2.0 m
brightness level (adjustable)	2÷500 lx
switch-on time (adjustable)	0÷10 min.
detection	
sensor	ToF laser sensor
wave length	940 nm
security	1 st class
beam scattering	±18°
power consumption	
standby	0,5 W
on (relay on)	1 W
terminal	2.5 mm ² screw terminals
tightening torque	0.4 Nm
working temperature	-10÷45°C

continued on next page

Technical data cont.

dimensions

external

80×80×6,5 mm

internal (box)

ø60 mm, depth= 30 mm

mounting

flush-mounted

ingress protection

IP30

Warranty

The F&F products are covered by a warranty of the 24 months from the date of purchase. Effective only with proof of purchase. Contact your dealer or directly with us.

CE declaration

F&F Filipowski L.P. declares that the device is in conformity with the essential requirements of The Low Voltage Directive (LVD) 2014/35/EU and the Electromagnetic Compatibility (EMC) Directive 2014/30/UE.

The CE Declaration of Conformity, along with the references to the standards in relation to which conformity is declared, can be found at www.fif.com.pl on the product page.

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