

SRP: Presence Detection Sensor

SRP (Sensor for the Revelation of Presence) module is a presence detector compatible with both **Domino** bus and **CONTATTO** bus. It allows to develop applications that respect the new European norms for the energetic classification of the plants (European Standard EN 15232).

SRP is for false-ceiling mounting applications and it allows to detected the presence of moving people in the range of 10 meters from the sensors. The module features a 5-way removable terminal block for the connection of the power supply and the outputs, one of PNP type and one of NPN type; these two outputs are, respectively, in positive and negative logic, allowing the module to be compatible with all input modules of **CONTATTO** and **Domino** bus.

SRP module allows to detect the presence of moving bodies, which temperature is different from the ambient temperature, thanks to the emission from these body of infrared radiations (these sensors are called passive infrared type).

SRP module is particularly suitable for the use in conjunction with the brightness sensor **CONTATTO** ModLC (see the related technical sheet). In this way it is possible to realize an intelligent control of the lighting in buildings having the energy saving as primary target.

Thanks to the reduced dimensions, it is possible the installation of more SRP modules in parallel in the same room; this choice is necessary in open-space rooms of big dimensions.

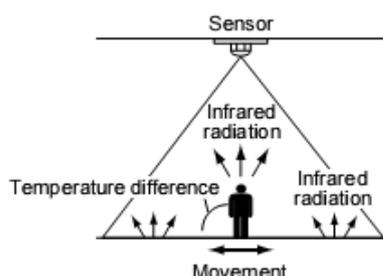
The SRP module is housed in a plastic box with IP20 protection degree.

Sensor back-lighting

When the sensor is detecting a movement, its lens will be back-lighted in blue color. When no more movement is detected, the back-light will be turned off with fade-out.

Detection characteristic

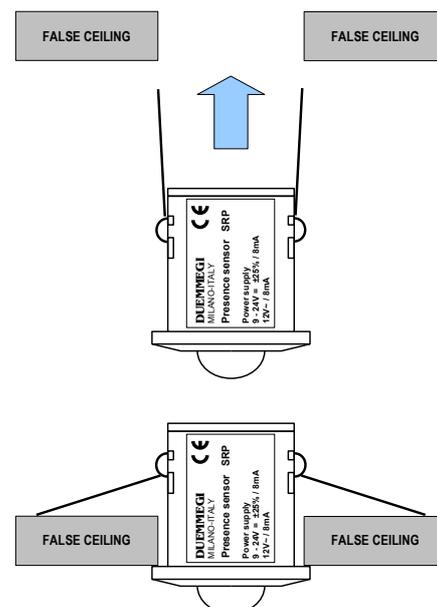
The presence sensor, as said above, can detect the movement in the range of 10 meters from the sensor. The following picture shows the detection principle of the passive infrared sensors.



When a person/object is moving, thanks to the detection of infrared radiation emitted by the body, the sensor will be able to detect the movement.

Installation hints

Make an hole of suitable diameter for the insertion of the sensor in the false-ceiling and assemble it as shown in the following figure.



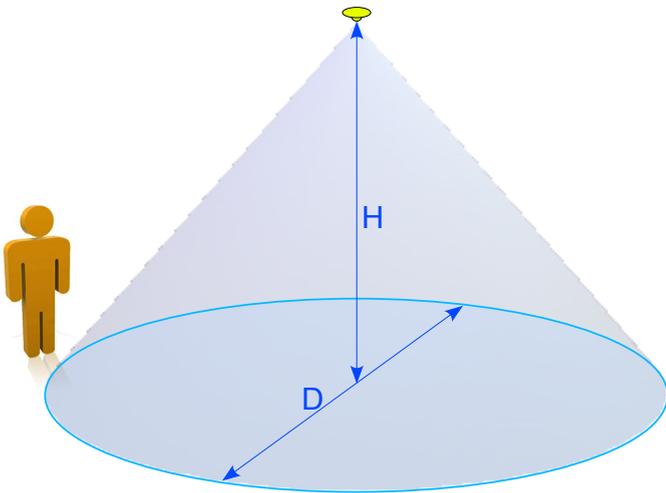
The sensor has to be fixed to the false-ceiling by means of the two proper spring clips. It is suggested to insert the 5-way terminal block after the mounting in the false-ceiling and after having executed the proper electrical connections (see the paragraph "Module Connection").

To define how many presence detection sensors are required in a room, it is suggested to take in account the physical dimensions of the room, thus the area to be covered and the height. In facts, the cone of the detecting area depends on the mounting height of the sensor; it is however suggested to limit the maximum mounting height to 6.5 meters.

For the calculation of the covered area refer to the following formula:

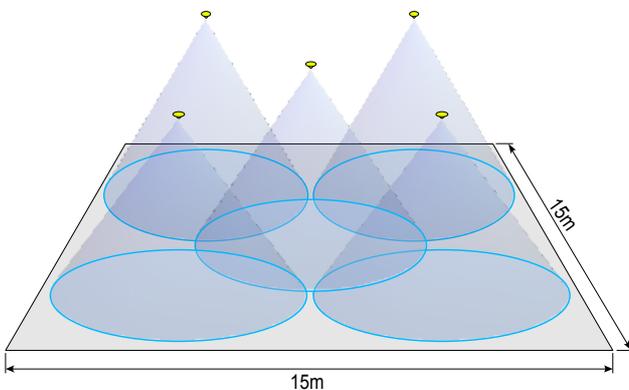
$$D = H \times 2.38$$

where D is the diameter of the cone base and H is the mounting height, as shown in the following figure:



Therefore, supposing a typical room height of 2.8m, the diameter of the detection cone (on the floor) will be approximately 6.5m.

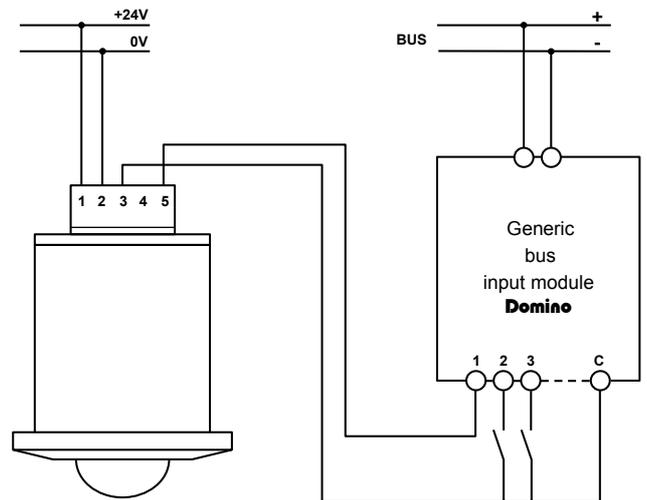
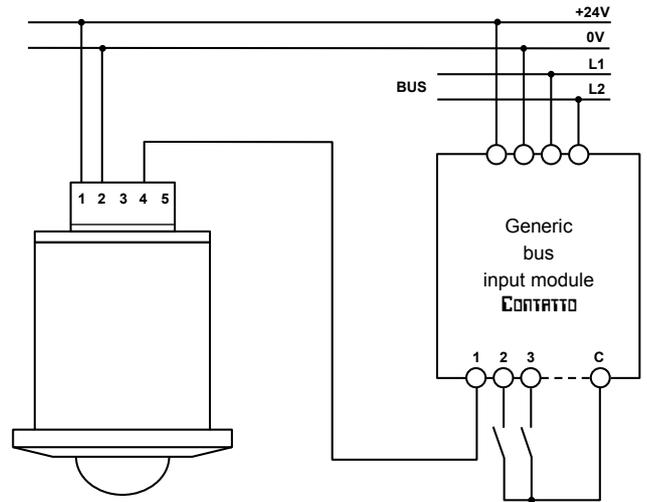
For example, in a room of 15x15m with height of 2.8m, it is advisable to install 5 SRP as shown in the next figure:



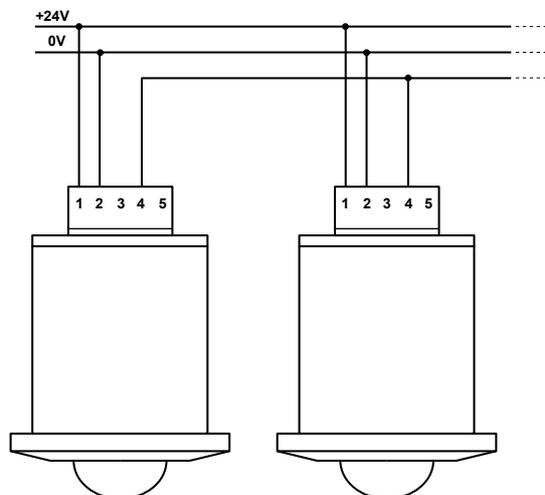
For more information and precautions concerning the installation of the detection sensors, refer to the paragraph "General precautions" in the following of this technical sheet.

Module connection

As said above, the presence sensor module SRP is compatible both **CONTATTO** bus and **Domino** bus; for the connections to a generic input module of the two systems refer to the following schematic diagrams.

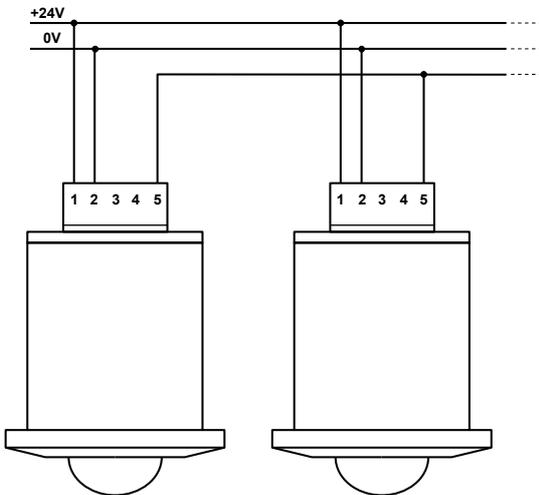


If more SRP modules are needed in the same room, these ones can be parallel connected and to the the same input. **CONTATTO** case:



SRP

Domino case: it is necessary to connect in parallel mode the NPN outputs (terminal 5); the terminal 3 (0V) can be connected only to the last SRP before the input module.



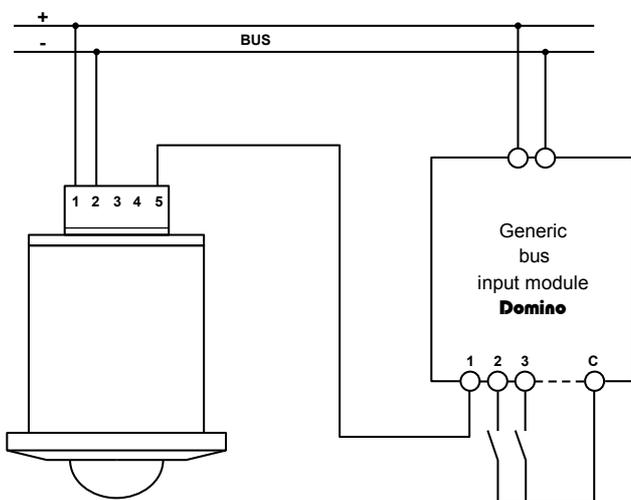
Some of the Contatto input modules compatible with the presence detection sensor SRP are the followings:

- x MOD8I/A
- x MOD4IS
- x MOD2DV
- x MOD2DM
- x MOD32I/A

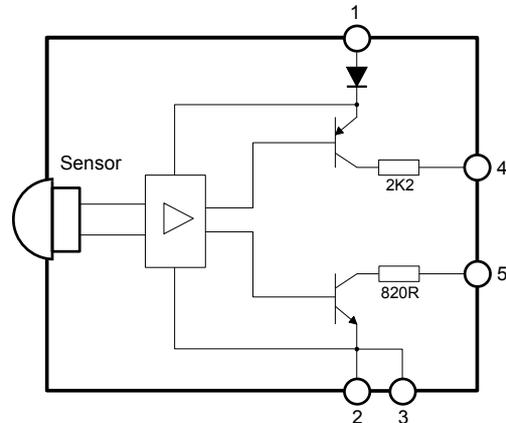
Some of the Domino input modules compatible with the presence detection sensor SRP are the followings:

- x DF4I
- x DF4I/V
- x DF8I
- x DFTP/I
- x DF4IL

In **CONTATTO** bus, supply SRP by the 24V of the bus. In **Domino** bus, supply SRP at 24Vdc or at 12Vdc or ac. In **Domino** bus it is also possible to supply SRP by the bus itself (consumption weight = 1) as in the following schematic.



SRP module can be also used outside **CONTATTO** and **Domino** bus applications; the next block diagram of SRP module shown, in particular, the output circuits.



General precautions

As said in the previous paragraphs, given that the detection is based on the detection of infrared emissions, it is best practice to take in account the following aspects related to the use and installation of SRP module (Presence Detection Sensor) in order to avoid possible presence detection mistakes by the sensor.

Detection of heat sources other than a human body

The following cases show various situations where detection mistakes by the detection sensor may happen.

- x small animals entering in the detection range
- x infrared emissions from sunlight, incandescent light or some other sources of far infrared rays
- x sudden change of the temperature due to the entry of cold or warm air from an air-conditioning or heating unit or water vapor from a humidifier

Bad conditions for the detection

- x the detection of movement by the sensor could be disturbed by the presence of glasses objects, acrylic or other materials that may shield the infrared rays
- x a heat source not moving or moving too quickly or moving too slowly may be undetected by the sensor
- x the sensor is less sensible when the temperature of the moving body is near to the ambient temperature

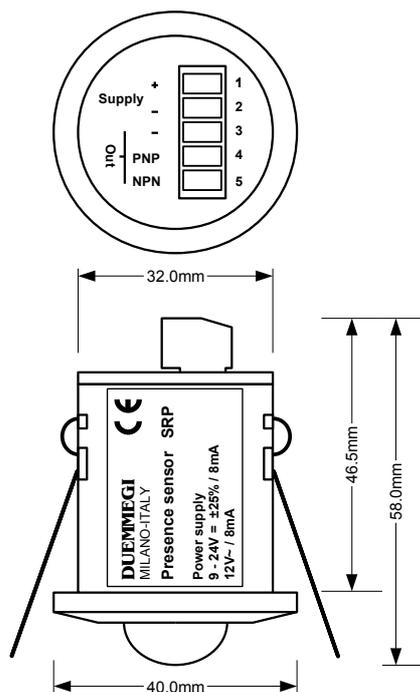
Other handling cautions

- x be careful to keep clean from dust or dirt accumulating on the lens because this will adversely affects the detection sensitivity
- x the lens is made by a soft material (polyethylene); avoid applying a load or impact since this will deform or scratch the lens
- x to cleaning the sensor avoid the use of fluids that may enter inside the sensor causing a deterioration

Technical characteristic

Supply voltage	8 ÷ 30V $\overline{\text{---}}$ or 12V ~ SELV
MAX current consumption	8mA in the range 8 ÷ 30V, excluded outputs current
Sensor	Passive infrared principle
Aperture angle	100°
Range of detection MAX	10 meters
Suggested maximum mounting height	6.5 meters
Outputs	NPN and PNP voltage outputs with internal resistance for current limitation
Delay on the outputs at the end of detection	About 4 seconds
Operating voltage	-10 ÷ +50 °C
Storage voltage	-30 ÷ +85 °C
Protection degree	IP20

Dimensions



Installation and use restrictions

Standards and regulations

The design and the setting up of electrical systems must be performed according to the relevant standards, guidelines, specifications and regulations of the relevant country. The installation, configuration and programming of the devices must be carried out by trained personnel.

The installation and the wiring of the **CONTATTO** bus line and the related devices must be performed according to the recommendations of the manufacturers (reported on the specific data sheet of the product) and according to the applicable standards.

All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation.

Do not operate the unit outside the specified technical data.

Never open the housing. If not otherwise specified, install in closed housing (e.g. distribution cabinet).

Earth the unit at the terminals provided, if existing, for this purpose. Do not obstruct cooling of the units.

Setting up

The physical address must be assigned with the specific programmer and the setting of parameters (if any) must be performed by the specific configuration softwares; for more details refer to the specific data sheet of the product. For the first installation of the device, generally and unless otherwise specified on the specific data sheet of the product, proceed according to the following guidelines:

- Check that any voltage supplying the plant has been removed
- Assign the address to module (if any)
- Install and wire the device according to the schematic diagrams on the specific data sheet of the product
- Only then switch on the 230Vac supplying the bus power supply and the other related circuits

Applied standards

The devices belonging to **CONTATTO** line comply with the essential requirements of the following directives:

2004/108/CE (EMC)

2006/95/CE (Low Voltage)

2002/95/CE (RoHS)

Correct disposal of the product (waste electrical & electronic equipment)



(Applicable in the European Union and other European countries with separate collection systems).

This marking on the product, accessories or documentation indicates that the product and its electronic accessories should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. Adequate disposal of the decommissioned equipment for recycling, treatment and environmentally compatible disposal contributes in preventing potentially negative effects on the environment and health and promotes the reuse and/or recycling of equipment materials. Abusive product disposal by the user is punishable by law with administrative sanctions.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. Adequate disposal of the decommissioned equipment for recycling, treatment and environmentally compatible disposal contributes in preventing potentially negative effects on the environment and health and promotes the reuse and/or recycling of equipment materials. Abusive product disposal by the user is punishable by law with administrative sanctions.

Note

Technical characteristics and this data sheet are subject to change without notice.