

INSTALLATION EXAMPLE 1A

Daylight-dependent lighting controlled by a presence detector.

Description:

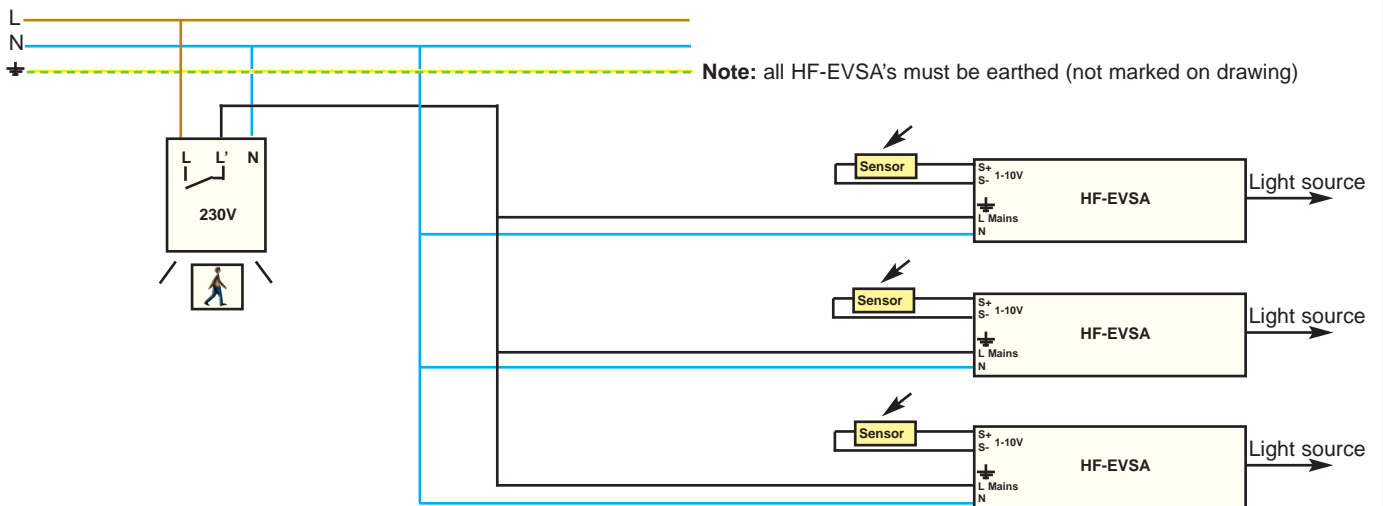
The entrance or presence of a person is detected by the sensor which switches on the light via a relay. Each fitting has a daylight sensor and measures the light level independently. Each fitting provides only the quantity of light required to achieve the desired lux value. After the departure of any people, the light goes out after the preset time (sensor).

Advantage

- | | |
|-------------------------------------|---|
| Energy saving from the sensor | : average 35% |
| Energy saving from daylight control | : between 20 and 65% |
| Comfortable | : every position has the desired light level, and switches on and off automatically |
- Low installation costs
Increased work productivity

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance (see diagram page 07-1.J).
- * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram 1E).
- * Use several sensors for a larger detection field (see diagram 1B / 1C / 1D).



INSTALLATION EXAMPLE 1B

Daylight-dependent lighting controlled by several presence detectors.

Description:

The entrance or presence of a person is detected by one sensor which switches on the light via a relay. Each fitting has a daylight sensor and measures the light level independently. Each fitting provides only the quantity of light required to achieve the desired lux value. After the departure of any people, the light goes out after the preset time (sensor).

Advantage:

Large surface areas are covered.

Energy saving from the sensor

: average 35%

Energy saving from daylight control

: between 20 and 65%

Comfortable

: every position has the desired light level, and switches on and off automatically

Low installation costs

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance (see diagram page 07-1.J).
- * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram 1E).

Products and maximum detection area for installation height ± 2.50 m:

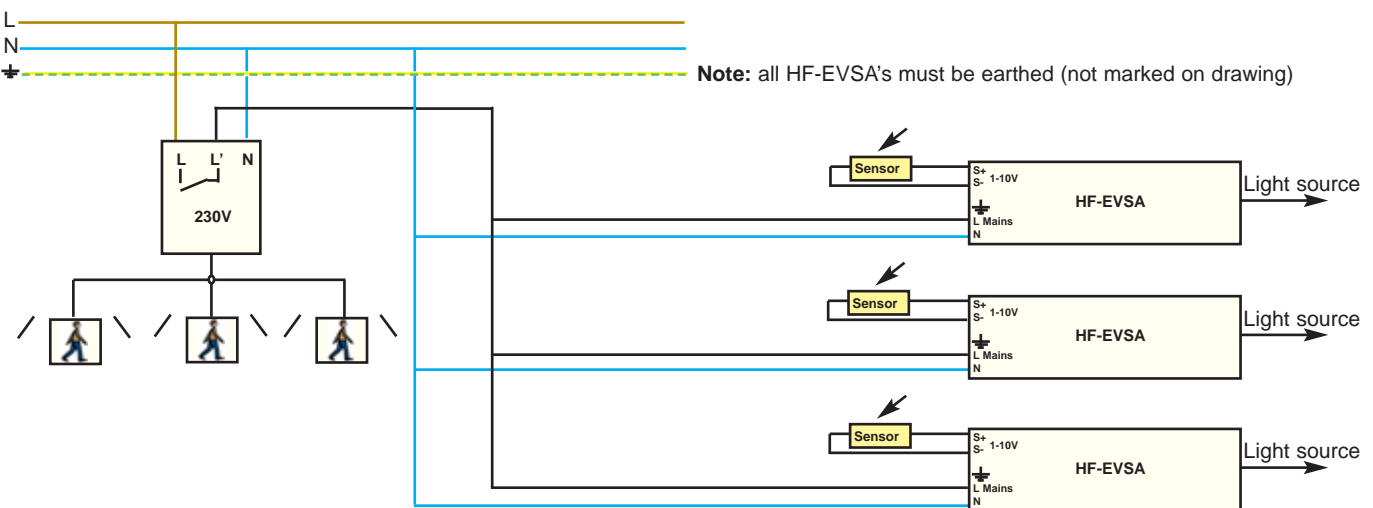
870550 PLF-IB-PIR : max. 2 sensors per switch block, maximum floor detection area 60m²

870580 PLF IB PIR/80 : max. 4 sensors per switch block, maximum floor detection area 320m² of which 120 m² presence detection and 200 m² as movement sensors.

871550 + 871565/871567 : max. 4 sensors per switch block, maximum floor detection area 172m²

871555 + 871565/871567 : max. 4 sensors per switch block, maximum floor detection area 172m²

NB. Installation at a different height has a great effect on the shape of the detection area.



INSTALLATION EXAMPLE 1C

Daylight-dependent lighting controlled by several presence detectors connected in parallel.

Description:

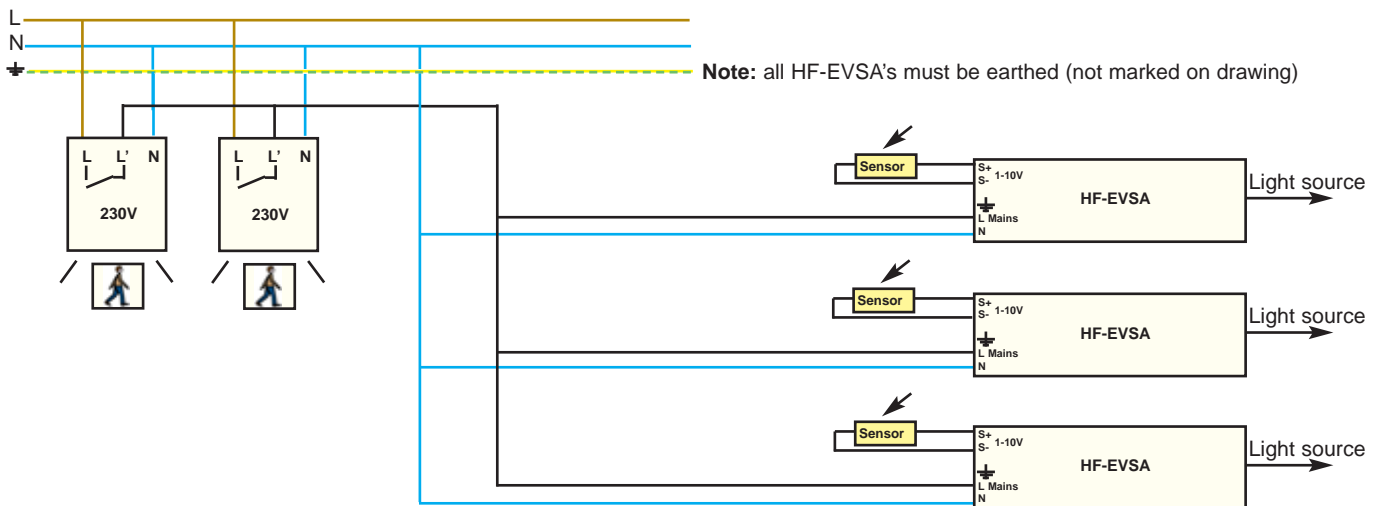
The entrance or presence of a person is detected by one sensor which switches on the light via a relay. Each fitting has a daylight sensor and measures the light level independently. Each fitting provides only the quantity of light required to achieve the desired lux value. After the departure of any people, the light goes out after the preset time (sensor).

Advantage:

- | | |
|-------------------------------------|---|
| Large surface areas are covered. | |
| Energy saving from the sensor | : average 35% |
| Energy saving from daylight control | : between 20 and 65% |
| Comfortable | : every position has the desired light level, and switches on and off automatically |
| Low installation costs | |

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance (see diagram page 07-1.J).
 - * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram 1E).
 - * For large loads, use an auxiliary relay (see diagram 1D).
- All outputs from the switch blocks are connected in parallel and control an external auxiliary relay.



INSTALLATION EXAMPLE 1D

Daylight-dependent lighting controlled by several presence detectors with outputs connected in series, controlling the lighting via an auxiliary relay.

Description:

The entrance or presence of a person is detected by the sensor which switches on the light via the relay. Each fitting has a daylight sensor and measures the light level independently. Each fitting provides only the quantity of light required to achieve the desired lux value. After the departure of any people, the light goes out after the preset time (sensor).

Advantage:

Large surface areas are covered.

Energy saving from the sensor

: average 35%

Energy saving from daylight control

: between 20 and 65%

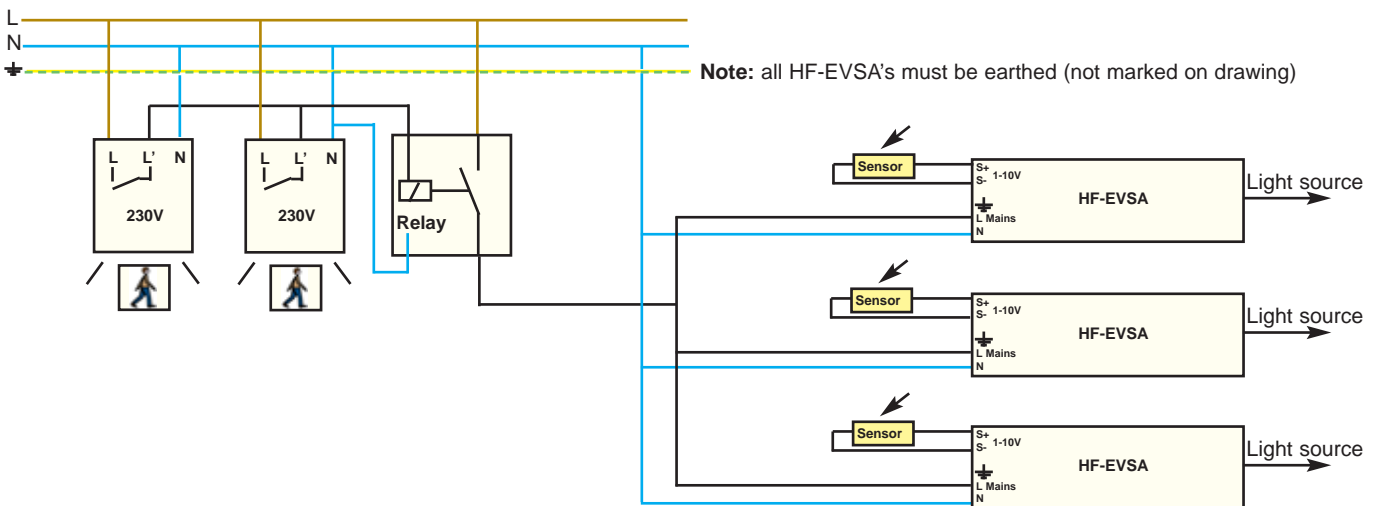
Comfortable

: every position has the desired light level, and switches on and off automatically

Low installation costs

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance (see diagram page 07-1.J).
- * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram 1E).



INSTALLATION EXAMPLE 1E

Daylight-dependent lighting controlled in three steps by one presence detector and one step adapter. Step 1= 100% light / step 2 = e.g. 25% light / step 3 = fully off.

Description:

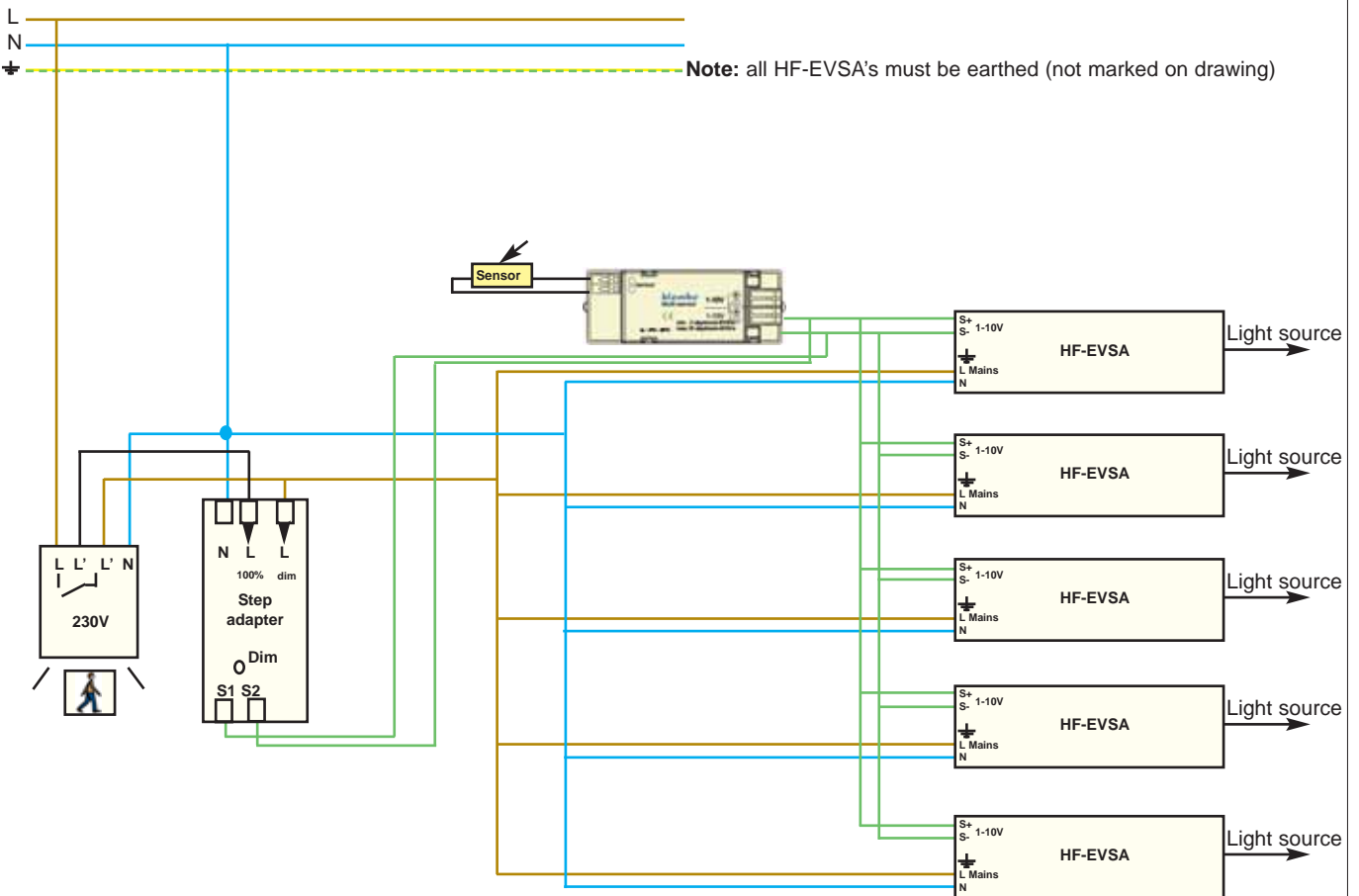
The arrival or presence of a person is detected by a sensor, which switches the lighting to maximum light level via the relay 1. All fittings are controlled daylight-dependent by the multisensor. After relay 1 switches off, the light level changes to the second step (fully adjustable between 10 and 50%) for the time period set in relay 2. After this time, the light switches off completely. The installation is ideal for workplaces, medical rooms, shops, showrooms, product of the week etc.

Advantage:

Energy saving from the sensor : average 35%
 Energy saving from daylight control : between 20 and 65%
 Never be suddenly plunged into darkness.

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance.
- * Fit several sensors for a larger detection area.
- * If the lighting power supply is connected directly to the mains, the lighting can remain on at a low level.



INSTALLATION EXAMPLE 2

Daylight-dependent lighting controlled by 1 multi-daylight sensor controlled with parallel 1-10V potentiometer which limits the maximum daylight level. All controlled (on/off) by a presence detector.

Description:

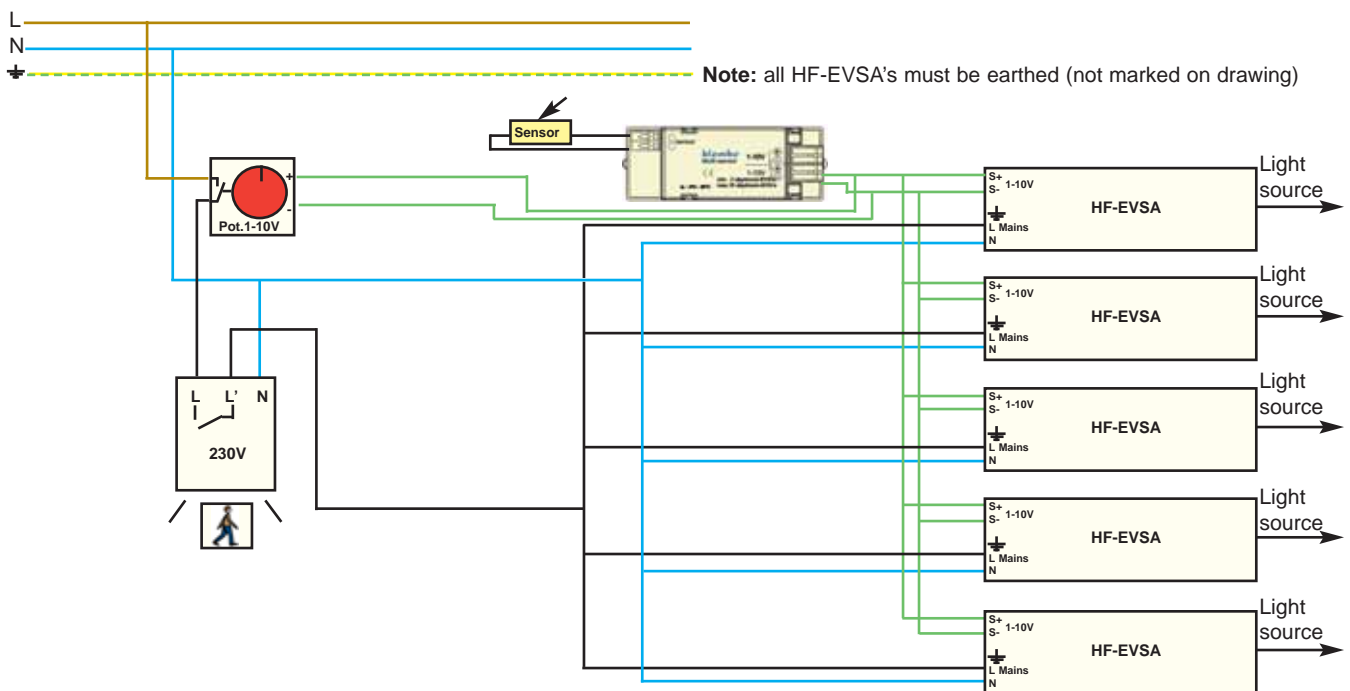
The entrance or presence of a person is detected by the sensor which switches on the light via a relay. All fittings are controlled simultaneously by a daylight sensor which measures the light level independently. All fittings provide the same quantity of light. The parallel-connected potentiometer allows the user to adjust the light downwards. Via the make contact, the user can also switch on the detector on arrival so that the lighting also comes on immediately (a presence detector connected to power always switches on directly unless precautions are taken). After departure of people, the light goes out after the set time (via sensor).

Advantage

- Energy saving by sensor : average 35%
- Energy saving from daylight control : between 20 and 65%
- Low installation costs
- Even light stream from the ceiling.
- Light level can be adjusted manually.

Extra facilities:

- * Use several sensors for a larger detection field (see diagram 1B / 1C / D).
- * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram 1E).



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INSTALLATION EXAMPLE 3

Daylight-dependent lighting controlled by 1 multi-daylight sensor controlled with parallel DIA-SCHAK 1-10V which controls the maximum daylight level. All controlled (on/off) by a presence detector.

Description:

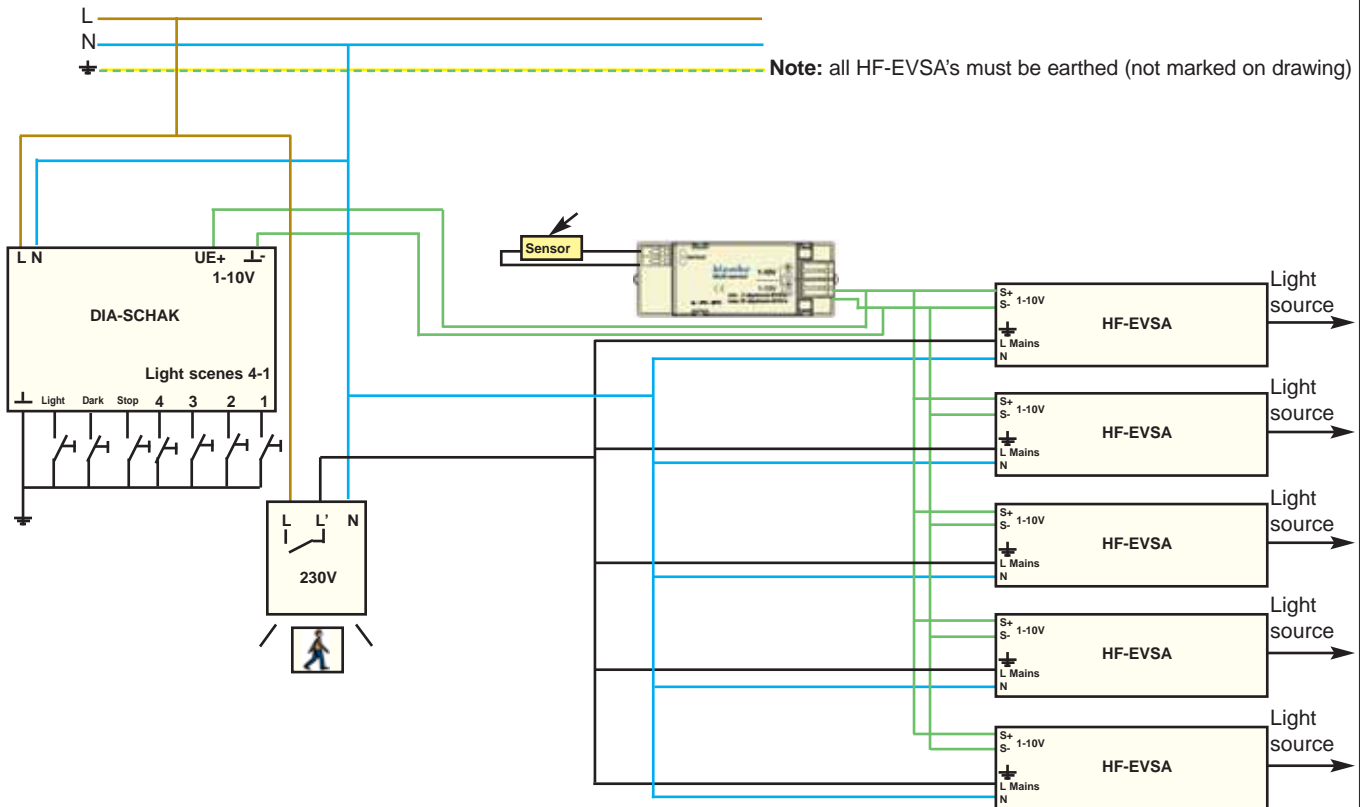
The entrance or presence of a person is detected by the sensor which switches on the light via a relay. All fittings are controlled simultaneously by a multi-daylight sensor which measures the light level independently. All fittings provide the same quantity of light. The parallel-connected “dia-switch” allows the user to adjust the light downwards. 4 different scenes can be programmed into the dia-switch so that the user can easily switch from one to another. After departure of people, the light goes out after the specified time (via sensor).

Advantage

- Energy saving by sensor : average 35%
- Energy saving from daylight control : between 20 and 65%
- Low installation costs
- Even light stream from the ceiling.
- Very comfortable for the user : the settings are already pre-programmed

Extra facilities:

- * When the presence detector is installed as an absence detector, the user decides whether the light must be activated in the first instance (see diagram page 07-1.J).
- * Use of a step adapter creates a two-three stage light level, where the light never goes out suddenly (see diagram 1E).
- * Use several sensors for a larger detection field (see diagram 1B / 1C / D).



INSTALLATION EXAMPLE 4

Daylight-dependent lighting which, via a time clock, emits as standard 20% of its light level during the evening and night, but after detection lights to maximum level for a preset time period.

Description:

Ideal installation structure for public floor lighting e.g. in hospitals, care homes, underground car parks etc.

Example of hospital floor lighting in corridors and stairwells

By day, the lighting is controlled daylight-dependent simultaneously in parallel, controlled via the multisensor so that the lighting automatically adapts to the light level indoors. From 22.00, via the time switch clock, the presence detectors are activated and at the same time the light level is reduced via a step adapter to a specific percentage (e.g. 20%). When a person is detected by one of the detectors, the light level shifts to 100% for the time set on the sensors. After this time has elapsed, the light level falls to 20%. At 06.30, the time clock switches off, and the lighting adapts itself to the daylight-dependent level.

Advantage:

A simple but decentral dynamic lighting system, where the same light sources are used for both daytime and night-time lighting.

Energy-saving from night-time level compared with continuous on : average 35%

Energy saving from daylight control : between 20 and 65%

Low installation costs

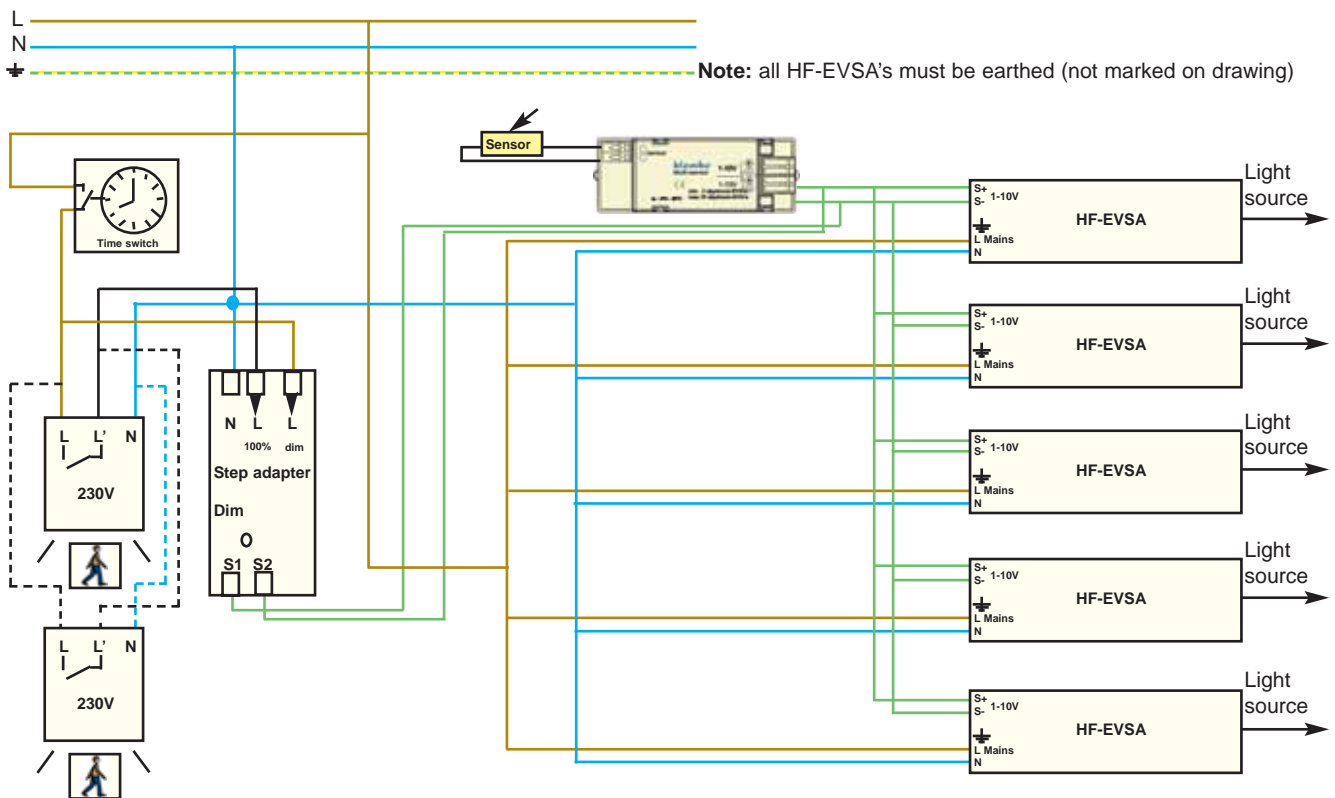
Even light stream from the ceiling.

Very comfortable for users as the HF-EVSA's are fitted with integral delay, preventing a black/white effect for the eyes. The range of time and light level settings makes the system simple and totally adaptable to the user's wishes.

Extra facilities:

By replacing the time clock with a radiographic receiver, the time level can be determined independently by a user (see Klemdotica radiographic receivers).

Several sensors can be fitted per switch block (see installation diagram 1B / 1C / D)



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INSTALLATION EXAMPLE 5

Daylight-dependent lighting controlled by 1 multi-daylight sensor controlled with parallel 1-10V dia-switch and a mixture of fluorescent and halogen lighting. All controlled (on/off) by a presence detector.

Description:

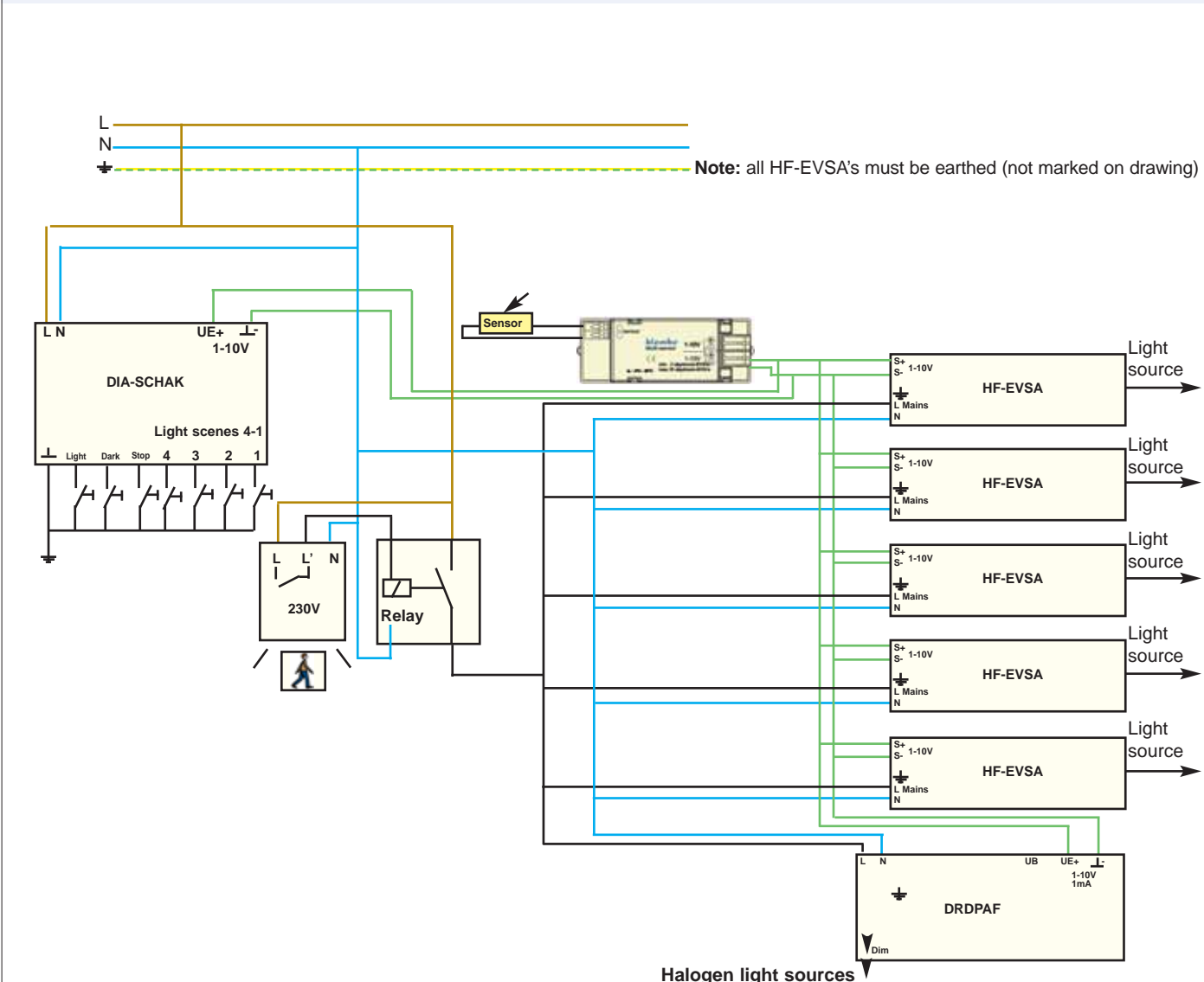
The entrance or presence of a person is detected by the sensor which switches on the light via a relay. All fittings are controlled simultaneously by a daylight sensor which measures the light level independently. All fittings provide the same quantity of light. The parallel-connected "dia-switch" allows the user to adjust the light downwards as the maximum light level is limited by the daylight sensor. 4 different scenes can be preset into the dia-switch so that the user can bring the light to the desired level with one push of a button. Uniquely, with a 1-10V control level, both fluorescent and Ohmic lighting such as halogen and incandescent lamps can be controlled simultaneously. After departure of people, the light goes out after the specified time (via sensor).

Advantage

- Energy saving by sensor : average 35%
- Energy saving from daylight control : between 20 and 65%
- Low installation costs
- Even light stream from the ceiling.
- User-friendly thanks to scene programming.

Extra facilities:

- * Use of a step adapter creates a two-stage light level, where the light never goes out suddenly (see diagram page 07-1.J).
- * Use several sensors for a larger detection field (see diagram 1B / 1C).



The presence detector is installed as an absence detector.

In many situations, the user needs a presence detector which does not switch on automatically when a person enters a room temporarily. The absence detector was developed for this. The presence detector with a double relay output can easily be installed as an absence detector. Item numbers 870550 / 870580 / 870560

Description:

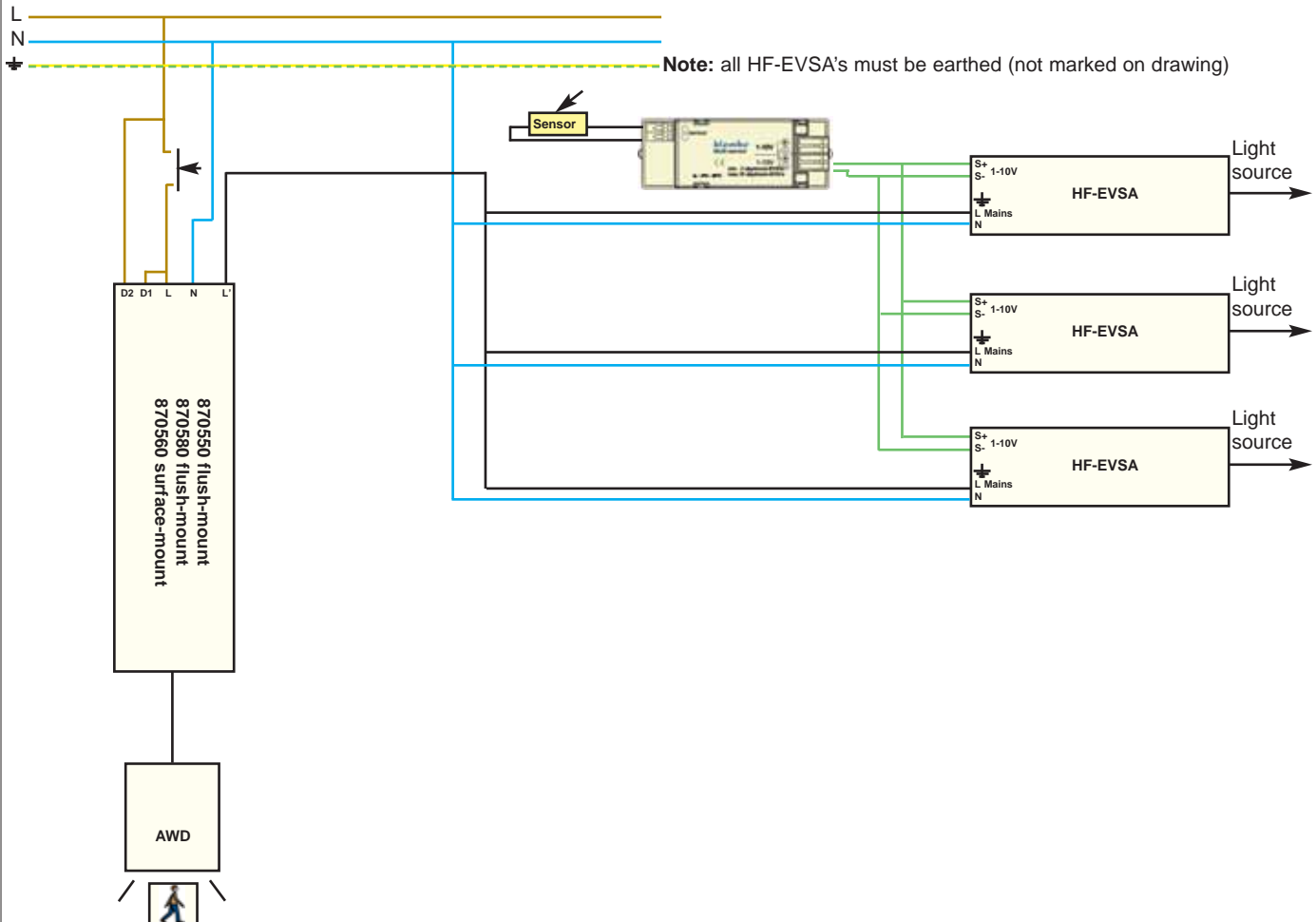
Sensor setting. (T1 = 12 minutes T2 = 20 minutes).

Via a "normally open" pulse switch, the user decides whether the light should come on. After a pulse has been given, the presence detector should switch on directly with both relay outputs closed. Relay 2 keeps a maintenance voltage connected. Relay 1 is the light relay that controls the lighting. 12 minutes after the last detection pulse has been given, the light goes out. The presence detector then remains operational for a further 8 minutes, after which it switches itself off. On detection within these 8 minutes, the 20-minute cycle begins again, where the light remains on for 12 minutes. If a person enters after 20 minutes, the pulse switch must first be activated to start the system. In most structures, the presence detector can be replaced by the absence circuit.

Advantage

Prevents unnecessary switching on.

Saves energy and extends life of light sources



Installation concept for: classroom lighting 1

To the guidelines of the National Buildings Department.

Daylight-dependent lighting controlled on/off by presence detectors with double output, of which 1 x is lux-dependent and 1 x lux-independent.

Description:

In a classroom, the lighting is controlled by 2 presence sensors which together control 1 switch block. Lighting row 1 (window side) is connected to relay 1 which is controlled lux-dependent so if the light coming in is sufficient, the entire lighting row remains fully off. Lighting rows 2 + 3 are switched on lux-independent solely by detection. All fittings have their own daylight sensor (1-10V) which controls the light level of the fitting independently. After everyone has left the room, after the set time the entire lighting is switched off.

Advantage

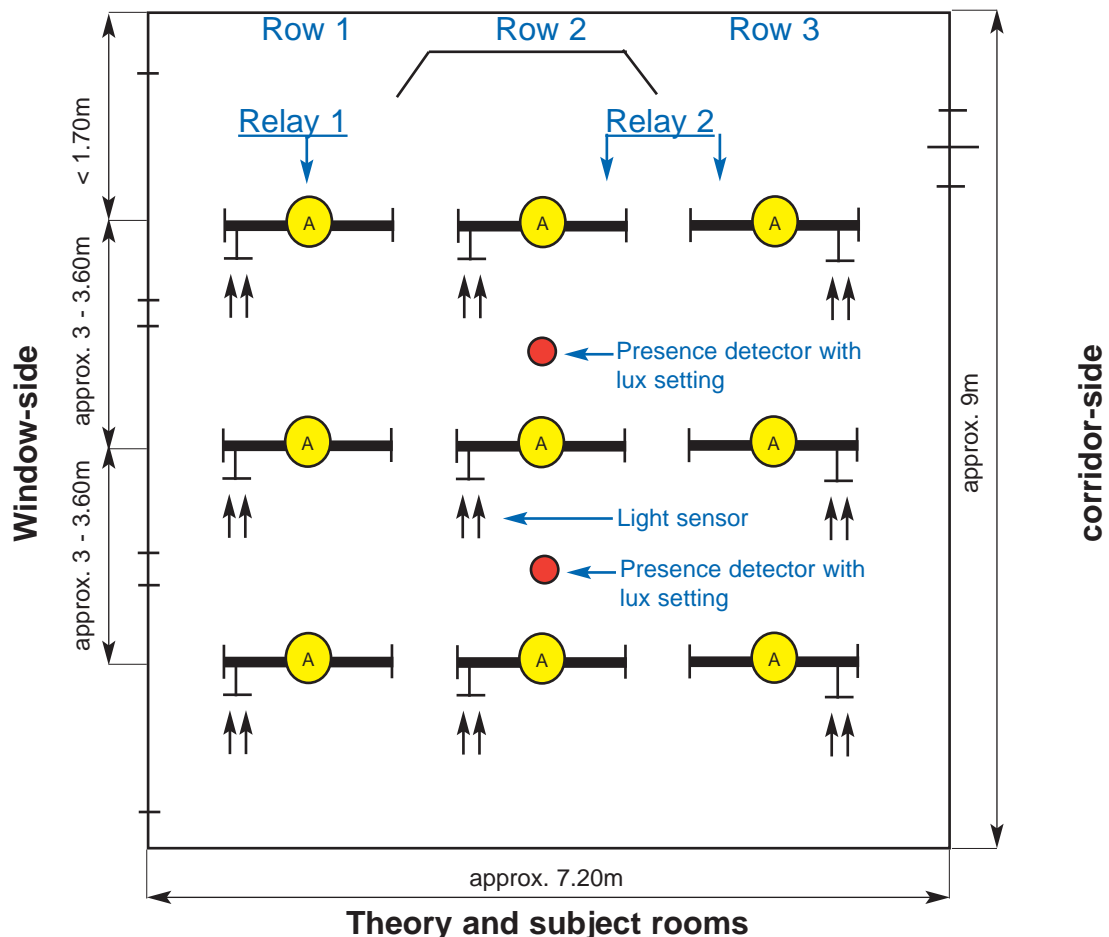
Simple, low-cost installation with very high energy savings.

Daylight-dependent window-side energy saving	: ± 90%
Daylight-dependent centre and corridor side	: ± 30%
Saving with presence detector	: ± 35%

Extra facilities:

With presence detector 870580, via the remote control the sensor is set continuously on and continuously off for presentations etc.

By following Installation Diagram 1E, the light will never switch off suddenly.



Installation concept for: classroom lighting 2

To the guidelines of the National Buildings Department.

Daylight-dependent lighting controlled on/off by presence detectors with double output, of which 1 x is lux-dependent and 1x lux-independent.

Description:

In this classroom, the lighting is controlled by 2 presence sensors which together control 1 switch block. All lighting rows are connected to relay 1, and controlled daylight-dependent by the multisensor (1-10V) 500 lux. When everyone has left the room, after the set time all the lights go out. The lux level can be set so that the lighting remains continuously off if sufficient light is coming in.

Advantage

Simple, low-cost installation with very high energy savings.

Daylight-dependent window-side energy saving : ± 90%

Daylight-dependent centre and corridor side : ± 30%

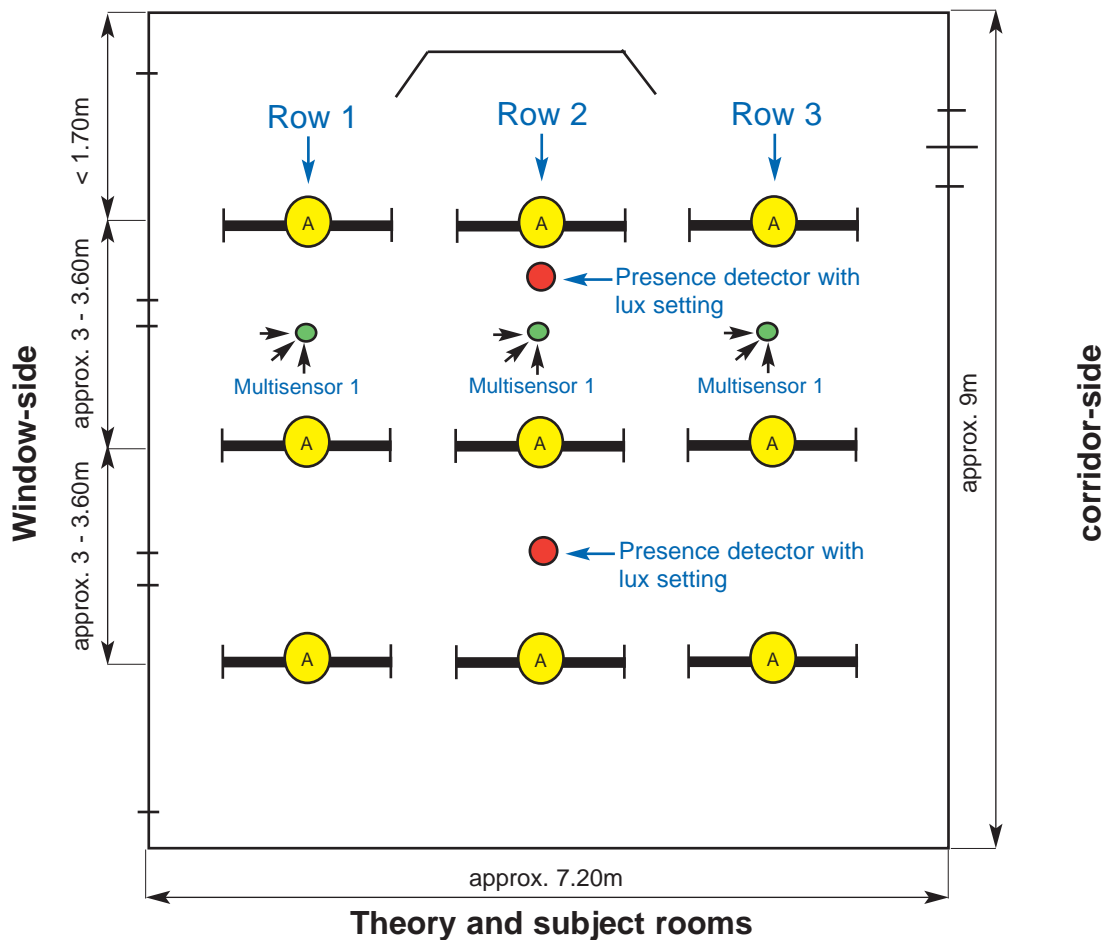
Saving with presence detector : ± 35%

Delay times built into the HF-EVSA's mean there is no black/white effect for the eyes. The transition in light level is gradual and not sudden.

Extra facilities:

With presence detector 870580, via the remote control the sensor is set continuously on or continuously off for presentations etc.

With the addition of the step adapter, the light never goes out suddenly (see diagram 1E).



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UNDERGROUND CARPARK LIGHTING

Installation concept for: underground carpark lighting

Daylight-dependent lighting which normally gives max. 20% of its light, but after detection lights to 100% for a preset time.

Description:

During the day, the lighting is also controlled in parallel daylight-dependent via the multisensor which is connected in parallel to the step adapter. The low light level is set between 10 and 50% manually. On detection of persons or vehicles by a presence detector or movement sensor, the light level rises to 100% (maximum level 150, 350 or 500 lux) for the time set on the sensors. After this time, the light level falls back to the low level.

Advantage

A simple but decentral, dynamic lighting system where the same light sources are used for both maximum lighting and for minimum lighting.

Energy saving from daylight sensor between 20 and 65%

Energy saving from night level v. continuous lighting maximum 90%.

Even light stream from the ceiling.

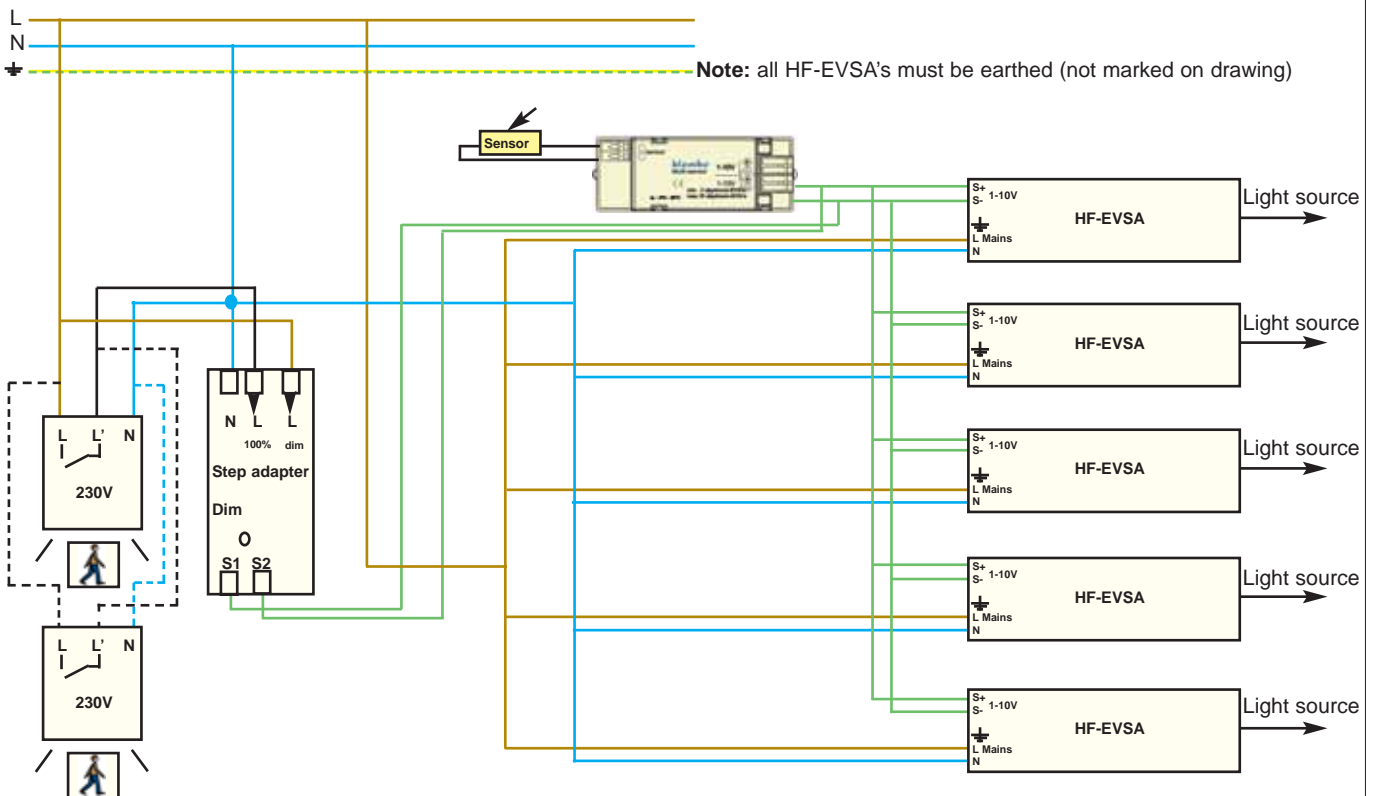
Low installation costs

Very comfortable for users as the HF-EVSA's are fitted with integral delay, preventing a black/white effect for the eyes. The range of time and light level settings makes the system simple and totally adaptable to the user's wishes.

Extra facilities:

Several sensors possible per switch block (see installation diagram 1B / 1C).

All fittings are fitted with their own daylight sensor (see installation diagram 1A).



General guidelines for working with P.I.R. presence detectors and movement sensors.

Function of P.I.R.

A passive infrared detector functions due to the perceived difference in temperature between the environment and objects which move. A P.I.R. product contains a PYRO-Quad element which registers these differences. Normally the aim is to detect people. As everyone has a body temperature of +/- 36°C, a person creates an infrared contrast to his immediate environment. When this contrast moves, this is detected and a switching action takes place. There is a difference in detection field between the winter period (cold environment, high contrast) and summer period (warm environment, lower contrast).

Difference between movement sensor and presence detector.

A movement sensor is mainly used outside a building. The detection field and sensitivity are set for this. This means that a movement sensor is made less sensitive, and its field structure is great. This prevents small objects such as domestic animals, wind etc. being detected unnecessarily.

The presence detectors have a very high sensitivity. Their main use is inside a building to control lighting etc. It is undesirable for people working without much movement not to be detected. It is undesirable for people who perform largely immobile work not to be detected. So detection fields of presence detectors have a fine field structure so the smallest contrast is detected by the PYRO-Quad elements.

General parameters for installation

Always use the right product for the right application. A presence detector under a porch outside will normally - undesirably - detect every passing cat. A movement sensor in an office environment will always be switching off the lights. The latest developments in the field of lighting ensure that many electrical phenomena are taken into account. TL fittings are now parallel-compensated to set the work factor to 1. For this, capacitors are used in parallel to compensate for the induction of the VSA. As a result of these capacitors, the switching characteristics of TL fittings are completely changed. Previously there were switch-off phenomena due to the counter-voltage, whereas now with parallel compensation very high inlet currents can be triggered. We have taken special measures to control these currents. The product specifications include these parameters as standard.

Installation

When positioning a detector/sensor, always take into account the direction of walking. A direct approach always gives shorter detection patterns than when a detection field is angled to the direction of walking.

Avoid false detection by taking into account:

- * Air ducts, watch for outlet from cooker hoods, heating elements, tumble-dryers etc.
- * As far as possible, avoid trees, large domestic animals and other moving objects
- * Do not point at highly reflective objects
- * Do not point at swimming pools
- * Preferably, do not point at the sun
- * Good connections; a loose contact can cause the system to restart

Combinations

Presence detectors and movement sensors can be combined perfectly with Klemdotica products and the external light switch. Combinations of products can for example provide extra facilities and functions for a system, such as:

- * A radiographic receiver in series with the sensor output ensures that the user can switch off the lights radiographically despite the detector signalling a presence.
- * Connect a dimmer in series with the output from a detector and the light is controllable.
- * A phase break dimmer in series with the detector output extends the life of halogen lamps, especially when used outside (no cold current).
- * Adding the external light switch gives 3 extra functions for a movement sensor.

General guidelines for working with radiographic products.

1. The ideal installation height for receivers and transmitters is ± 1 metre.
2. Ensure there are as few obstacles as possible between transmitter and receiver.
3. Place transmitter and receiver as far as possible from current conductors, large metal surfaces and other magnetic influences. Do not place a receiver or transmitter in an object or building which is made totally of metal with the aim of controlling from the outside towards the inside (Faraday cage).
4. When using several receivers, preferably space them at least 2 metres apart. This prevents attenuation of the signal, reducing the range.
5. Watch for interference from other users such as radio amateurs and equipment using the same radio frequency.
6. Interference from other Klemdotica users. The low power and wide choice of channels means that interference can easily be remedied by switching to a different address. Potential interference should disappear outside a radius of ± 50 metres.
7. Improve reception with external antennae if available. For various Klemdotica products, the antenna can be directed upwards, which increases the reception sensitivity.
8. To extend the range and perhaps strengthen the signal, the Klemdotica range includes a directly usable amplifier.

LIST OF FAULTS

Problem	Cause	Remedy
Transmitter and receiver no longer reach each other.	Battery low.	Fit a new battery.
	Interference transmitter in the area.	Remove this.
	Transmission signal too short.	Press the transmit button firmly.
	Voltage of a fixed installed product is not correct.	Check the voltage and connections.
	Distance too large.	Max. range and reception (see operating instructions).
	Address not always the same.	Check the channel and unit code.
Receiver switches on spontaneously.	Attenuation from several receivers installed too close together.	Point antennae outwards or increase the spacing.
	Too many obstacles between transmitter and receiver.	Remove these or relocate the transmitter or receiver.
Relay remains stuck.	Interference from other users. EMC pulse from other equipment e.g. motor switching off.	Choose another channel code. Fit an RC filter on the supply to the receiver.
	Switch-on current too large.	Use an auxiliary relay to carry the load.
Receiver switches but nothing happens.	Too much induction so the contacts burn in due to sparking.	Fit a spark quencher over the relay contacts or use an auxiliary relay.
	Various receivers are fitted with potential-free relay outputs. These must also be supplied to the input.	Connect the relay input contact.

Before proceeding with definitive installation, first test whether the transmitter and receiver reach each other at the desired locations. NB. During testing do not hold the receiver or transmitter in your hand as the human body can act as an interference antenna.

Presence detectors in building control systems.

In many buildings, intelligent control systems are installed to measure, control and adapt. For these systems, we offer many standard products in the form of separate presence sensors. The range includes many products with different connection values and physical designs, such as various lengths of connecting cable and number of outputs per sensor. Outside the standard range, we also offer the possibility of supplying customer-specific models. The table below lists all standard products with their specific features.

Item No.	Description	Connection value	Output	Cable length
870550	PLF-IB-PIR	203Vac	via switch block potential-free relay	40 cm
870551	PLF-IB-PIR/1U	230Vac	via switch block potential-free relay	40 cm
870560	PLF-OPB-PIR	230Vac	via switch block potential-free relay	N.A.
870552	PLF-IB-PIR/S	8.4Vdc	2 x 6.2Vdc	3 M
870553	PLF-IB-PIRS6	8.4Vdc	2 x 6.2Vdc	6 M
870554	PLF-IB-PIRS8	8.4Vdc	2 x 6.2Vdc	8 M
870555	PLF-IB-PIRS10	8.4Vdc	2 x 6.2Vdc	10 M
870572	PLFIBPIR/1U/S	8.4Vdc	1 x 6.2Vdc	3 M
870573	PLFIBPIR1US6	8.4Vdc	1 x 6.2Vdc	6 M
870574	PLFIBPIR1US8	8.4Vdc	1 x 6.2Vdc	8 M
870575	PLFIBPIR1US10	8.4Vdc	1 x 6.2Vdc	10 M
870585	PLFIBPIR/80/10	12Vdc	2 x open collector NPN max 20mA	10 M
871550	AWD-S-24-I5	10.8Vdc - 28Vdc	open collector NPN max 15mA	connection RJ-12
871555	AWD-S-24-V5	10.8Vdc - 28Vdc	open collector NPN max 15mA	connection RJ-12
871556	AWD-S24Vac/DC	10.8Vac - 28Vac	open collector NPN max 15mA	connection RJ-12
871557	AWD-S24Vac/DC	10.8Vac - 28Vac	also with analog 1-10V output	connection RJ-12
871561	AWD-S24Vac/DC	10.8Vac - 28Vac	also with analog 1-10V output	connection RJ-12



