

## Ceiling Surface PIR occupancy switches

### CESF PIR

DANLERS ceiling surface passive infra-red occupancy switches (CESF PIR) can be ceiling mounted on a square pattress box (DANLERS code: PABO).

The CESF PIR incorporates a passive infra-red quad sensor to detect movement of a warm body within its detection zone (diagram A) and a photocell to monitor the ambient light level.

Upon detecting movement, if the ambient light is dark enough, the CESF PIR will switch the load on. The ambient threshold can be set by the user to between approximately 100 lux and infinite lux (photocell inactive) via the LUX adjuster (diagram B).

If no more movement is detected within a pre-selected time, then the CESF PIR will switch the load off. This time lag can be set via the TIME adjuster to 10 seconds, 20s, 40s, 1 minute 15 seconds, 2m 30s, 5m, 10m, 20m or 40 minutes (diagram B).

CESF PIR also incorporates a sensitivity adjuster, labelled 'SENS', to reduce the range and sensitivity of detection (diagram B).

### Loading

DANLERS CESF PIR units can switch up to 6 amps (1500W) of:

- Fluorescent lamps, high frequency or switch start
- Incandescent or mains halogen lamps (recommended with integral safety fuse)
- Electronic or wire wound transformers.

They can also switch up to:

- 1 amp (250W) of metal halide lamps or fans.

### Troubleshooting

#### The load will not switch on:

- The LUX adjuster is set too low and is inhibiting the switch.
- The SENS adjuster is set too low.
- The moving body is not emitting more IR than the background.  
(Person wearing insulating clothing in a warm environment)
- Person is too far from the PIR switch, see detection diagram.
- Person is moving unusually slowly (perhaps when testing).

#### The load switches on when nobody is present:

- Heater causing infra-red variations in a cold small room or ceiling void drafts, fans, or sealed doors causing air movement.  
Reduce the sensitivity adjuster or consider using the CESF PIR 2D double detection version.
- Please contact DANLERS for further technical support.

## Installation procedure

1. Please read these notes carefully before commencing work.  
In case of doubt please consult a qualified electrician.
2. **POSITIONING:** The CESF PIR should be installed to achieve correct coverage of the area, see diagram A. If the photocell override facility is required, the switch must be located above an area where daylight can give greater illumination than the artificial light. Avoid locating this product where it is exposed to windy or drafty conditions (exposed lobbies, open ceiling voids or near ventilation fans) or near heat sources. To cover large areas CESF PIRs should be spaced in a 5 metre grid formation.
3. The greatest energy savings will be made if each CESF PIR controls an independent set of lamps. They can be wired in parallel but this should ideally be limited to three, see diagram D.
4. Make sure the power is isolated from the circuit.  
The CESF PIR should be connected as shown in diagrams C & D:  
L - Live in. N - Neutral in. SL - Switched Line out.

## Start-up mode

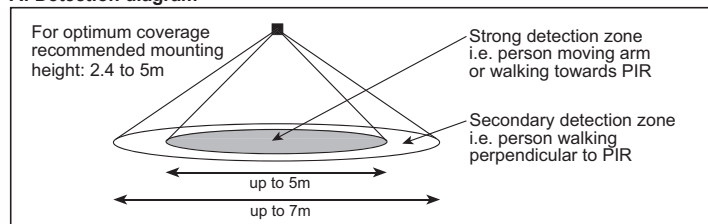
When the CESF PIR is powered up, it will switch on the load for 1 minute, the load will then switch off and the CESF PIR will enter its Operating Mode. If a manual override-off switch is positioned before the CESF PIR in the circuit (diagrams C & D, note 1) it will do this each time the wall switch is switched on. Alternatively, if the wall switch is placed after the PIR (diagrams C & D, note 2) it will not enter the start-up mode each time.

## Time and Lux set-up

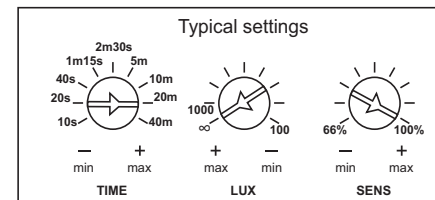
For convenience, ensure that the TIME is set to the minimum when setting up the LUX level. Afterwards set the TIME to a value suitable for the application, making reference to diagram B.

The LUX is best set up when the local ambient light is at approximately the minimum desired working light level, a lux meter placed on the surface under the CESF PIR may help. With the LUX set fully clockwise wait for the CESF PIR to switch off. Rotate the LUX adjuster slowly anticlockwise (- to +), whilst waving your hand approximately 1m below the PIR, until the load switches on.

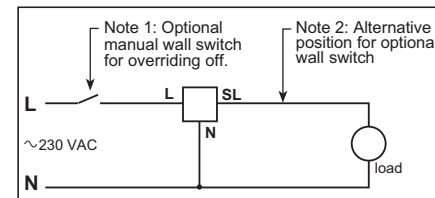
## A: Detection diagram



## B: Adjusting time, lux and sensitivity



## C: Wiring diagram, single PIR



## D: Wiring diagram, multiple PIRs

