Occupancy sensors
& PIRs
Various locations where motion sensors can be used are general office, stairwell, corridors outdoor applications.
Master & slave flush ceiling motion sensors

Crabtree’s range of occupancy sensors are designed to offer a quick and easy plug n play installation whilst offering savings to lighting energy consumption.

It is estimated that 70% of the UK’s lighting consumption is used in commercial applications. Studies of several rooms in different commercial environments installed with occupancy sensors, show that on average, 41% of lighting costs could be saved. By using Crabtree’s plug n play solution users can achieve these savings with a minimal investment, in time and money.

The versatility of the Crabtree plug n play installation makes the product ideal for coverage in all room shapes as well as a single detection zone having multiple sensor locations.

The master unit has power connected to a power supply module. Plug n play is then achieved by slave units connecting to each other via a supplied RJ11 cable in a daisy chain arrangement.

Further to the plug n play Master and Slave system the range is further complimented by a dedicated Ceiling and Corridor Sensor. The flush or surface mounted sensors have the largest known detection zone in the market, 24 metre diameter when fitted at optimal height.

The existing Crabtree Minder IP55 PIR range offers solutions for installations in arduous conditions.
# CEILING MASTER MOTION SENSOR

| PACK QTY | 6004 |

- Detection circular 360°
- 8 metre diameter detection zone at 2.4 metre height
- Switching capacity: 1800W Incandescent 1100VA Fluorescent 1100VA Energy Saving Lamp
- Time adjustment 30 sec to 30 min
- Photocell: Lux adjustment 5 to 1000 LUX
- Sensor adjustment 1 metre diameter to 8 metre diameter
- Power box supplied with master motion sensor
- 5 slave motion sensors can be connected in line with 1 master motion sensor
- Master motion sensor comes complete with 30cm RJ12 patch cord
- Plastic shroud supplied to help mask the lens if there are any undesired areas

## Product standards
- EN 61000-3-2:2006
- EN 60669-2-1:2004 + C1:2007 clause 26
- EN 60669-2-1:2004 + C1:2007

# CEILING SLAVE MOTION SENSOR

| PACK QTY | 6005 |

- No wiring required
- Detection circular 360°
- 8 metre diameter detection zone at 2.4 metre height
- Switching capacity: 1800W Incandescent
- 1100VA Fluorescent
- 1100VA Energy Saving Lamp
- Sensor adjustment 1 metre diameter to 8 metre diameter
- 5 slave motion sensors can be connected in line with 1 master motion sensor
- Slave sensor comes complete with 5 metre RJ11 patch cord
- Plastic shroud supplied to help mask the lens if there are any undesired areas

## Product standards
- EN 61000-3-2:2006
- EN 60669-2-1:2004 + C1:2007 clause 26
- EN 60669-2-1:2004 + C1:2007

101.1.1.2
101.3
Each power box can have not only one MASTER sensor but also can extend flexibly up to 5 SLAVE sensors.

Typical maximum layout of master followed by 5 slaves

Determine the best location for the sensor. Install the sensor at least 1m away from fluorescent and HVAC ducts, and at least 1.3m away from incandescent fixtures and HVAC diffusers.

1. Determine the best location for the sensor.
2. Drill a 63mm diameter hole in the ceiling. The thickness of the ceiling must be between 5mm and 25mm.
3. Insert the power module into the ceiling first and then fix the sensor with metal spring as shown.

ADJUSTMENTS

The sensor has an adjustable “TIME ON” control from 30 seconds minimum to a maximum of 30 minutes. Light will remain on for the setting time interval after the last movement is detected. While there is movement from a heat source in the detecting area the lighting will remain on and the time will keep resetting.

If time adjustment is set to PULSE, the sensor will enter short pulse mode. In short pulse mode, the sensor will send a signal to the device. The signal will be 1 sec ON and 9 sec OFF.

The LUX adjustment controls the light level at which the unit will switch on the light when movement is sensed. If set to the maximum position, it will switch during daylight. If set to the minimum position, it will operate only in total darkness. Ideally it should be set at dusk or in the light conditions under which the sensor and lights are expected to operate.

If LUX adjustment is set to maximum, the sensor will enter TEST mode. In TEST mode, the light will turn on for 3 sec when PIR is triggered. Check the detection area and adjust sensor to the desired angle. Afterwards, it can be switched back to desired time setting.

The sensor adjustment controls the detection range. If set to the maximum position, the detection range is about 4m radius. If set to the minimum position, the detection range is about 0.5m radius.

HIGHT RADIUS (M)

<table>
<thead>
<tr>
<th>HEIGHT</th>
<th>RADIUS (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>3.5</td>
</tr>
<tr>
<td>2.4</td>
<td>4</td>
</tr>
<tr>
<td>3.0</td>
<td>5.5</td>
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</table>
CEILING MOTION SENSOR

<table>
<thead>
<tr>
<th>PACK QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling Motion Sensor</td>
</tr>
</tbody>
</table>

- 360° Detection range, flush mounting
- 24 metre diameter detection zone at 3 metre height
- Switching capacity: 1000W Incandescent
  500VA Fluorescent
  500VA Energy Saving Lamp
- Photocell: Lux adjustment 2 to 1000 LUX
- Time adjustment 10 sec to 20 min
- Sensor adjustment 4 metre diameter to 24 metre diameter

Product standards
- EN 61000-3-2:2006
- EN 61000-3-3:2008

CORRIDOR MOTION SENSOR

<table>
<thead>
<tr>
<th>PACK QTY</th>
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</thead>
<tbody>
<tr>
<td>Corridor Motion Sensor</td>
</tr>
</tbody>
</table>

- 360° Detection range, flush mounting
- 24 metre in length 6 metre width detection range at 3 metre height
- Switching capacity: 1000W Incandescent
  500VA Fluorescent
  500VA Energy Saving Lamp
- Photocell: Lux adjustment 2 to 1000 LUX
- Time adjustment 10 sec to 20 min
- Sensor adjustment 4 metre diameter to 24 metre diameter
- Detection range is achieved by aligning the double arrow ➔ along corridor

Product standards
- EN 61000-3-2:2006
- EN 61000-3-3:2008

FLUSH MOUNT BACK BOX

<table>
<thead>
<tr>
<th>PACK QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gang 47mm deep dry lining back box</td>
</tr>
</tbody>
</table>

- Tile Thickness: 6.35 to 15mm
- Dimensions: 83mm x 83mm x 48mm
- Cut out dimension: 73mm x 73mm

SURFACE MOUNT BACK BOX

<table>
<thead>
<tr>
<th>PACK QTY</th>
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</thead>
<tbody>
<tr>
<td>1 Gang 39mm deep</td>
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</tbody>
</table>

- Dimensions: 90mm x 90mm x 39mm
The sensor has an adjustable “TIME ON” control from 10 seconds minimum to a maximum of 20 minutes (approx). Light will remain on for the setting time interval after the last movement is detected. While there is movement from a heat source in the detecting area the lighting will remain on and the time will keep resetting.

ADJUSTMENTS

The LUX adjustment controls the light level at which the unit will switch on the light when movement is sensed. If set to the maximum position, it will switch during daylight. If set to the minimum position, it will operate only in total darkness. Ideally it should be set at dusk or in the light conditions under which the sensor and lights are expected to operate.

The sensor adjustment controls the detection range. If set to the Maximum position “+”, detection range is approximately 12m radius, if set to the Minimum position “-”, detection range is approximately 2m radius.

### Detection Range

**6001**

<table>
<thead>
<tr>
<th>HEIGHT</th>
<th>RADIUS (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>10</td>
</tr>
<tr>
<td>2.5</td>
<td>11</td>
</tr>
<tr>
<td>3.0</td>
<td>12</td>
</tr>
</tbody>
</table>

**6002**

<table>
<thead>
<tr>
<th>HEIGHT</th>
<th>RADIUS (M)</th>
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</thead>
<tbody>
<tr>
<td>2.5</td>
<td>11</td>
</tr>
<tr>
<td>3.0</td>
<td>12</td>
</tr>
</tbody>
</table>

**NOTE:** 6002 detection range is achieved by aligning the double arrow along corridor.
# MINDER 90°, 220° & 280° SENSORS

<table>
<thead>
<tr>
<th>IP55</th>
<th>PACK QTY</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

Passive infrared motion detector which switches consumers through a timing element when sources of heat move within its range.

| Minder 90 Deg PIR sensor, no remote control, surveillance range 12m frontal, 6m lateral | 1 | 6853 |
| Minder 220 Deg PIR sensor, c/w remote control, surveillance range 16m frontal & lateral | 1 | 6845 |
| Minder 280 Deg PIR sensor, c/w remote control, surveillance range 16m frontal & lateral | 1 | 6846 |

**Dimensions**

- 102mm x 102mm x 182mm

- Minder 90° and 220° can be swivelled vertically +90° -40°
- Sensor head can be swivelled horizontally +/- 65°
- Can be wall or ceiling mounted
- Minder 90° and 220° offer rear-field “anti-creep” protection
- Maximum Switching current 16AX

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# MINDER SECURITY 220° SENSOR

<table>
<thead>
<tr>
<th>IP55</th>
<th>PACK QTY</th>
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<tr>
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</tbody>
</table>

Minder Security 220 Deg PIR sensor, c/w remote control, surveillance range 16m frontal & lateral

**Dimensions**

- 102mm x 102mm x 182mm

- Minder 220° can be swivelled vertically +90° -40°
- Sensor head can be swivelled horizontally +/- 65°
- Can be wall or ceiling mounted
- Minder 220° offers rear-field “anti-creep” protection
- Maximum Switching current 16AX

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# ANCIILLIARY ITEMS

<table>
<thead>
<tr>
<th>PACK QTY</th>
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<tbody>
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</tbody>
</table>

- Corner mounting bracket 1 | 6887 |
- Manual remote control 1 | 6841 |
- Service Manual remote control 1 | 6842 |
MINDER PASSIVE INFRA RED SENSORS

The Minder is a multi-adjustable, passive infrared movement detector. People and animals radiate heat, which is invisible to the human eye (infrared range). Consequently, the recorded infrared energy pattern changes when they enter the detection zone.

DETECTION RANGE DIAGRAMS

90° Rearfield detection

220° Rearfield detection

280° Rearfield detection

Range up to 16m

Range up to 12m

Minder 280

Installation sites

Be aware of trees and bushes

Do not install outside lights in detection zone

The various detection levels

To fully cover the surveillance zone, the Fresnel lens splits the zone into several overlapping levels.

Levels 1 and 2 cover remote surveillance and ensure seamless detection when the surveillance zone is entered from the outside.

Level 3 covers close range detection to prevent undetected entry of the surveillance zone close to the wall.

Level 4 covers the rearfield detection, which is activated when the front door is opened from the inside.
**SPECIFICATION:**

1. **POWER:** 220V to 240V ~ 50Hz.
2. Detection range: refer to fig. 1.
3. Time adjustment: 30 sec, 1 min, 3 min, 5 min, 10 min, 20 min, 30 min (apply to Master sensor only)
4. Lux adjustment: ‘Light level’ sensing from 2 Lux to 1000 Lux. (apply to Master Sensor only)
5. Sensitivity adjustment: 0.5m to 4m radius.
7. Master sensor can be connected to up to 5 slave sensors.
8. Warm up: 60 sec.
9. Test mode: Lux adjustment switch to maximum. Light turns on for 3 sec in each trigger.
10. Short time pulse mode: Time adjustment switch to minimum. 1 sec ON, 9 sec OFF.
11. Operating temperature: -10ºC to +40ºC.
12. Storage temperature: -25ºC to +70ºC.
13. Terminal capacity: 2 x 1.5mm².

**WIRING:**

**Warning:** Products should be installed by a qualified electrician. Ensure that the sensor is fixed securely to the ceiling without any movement.

1. The phase (L) and neutral (N) conductors of the supply cable are connected according to terminal assignment.
2. The OUTPUT phase (L') and neutral (N) conductors are to be connected to the load terminals marked L' and N.

**INSTALLATION:**

1. Fuse can be replaced by using a screwdriver to pull up the fuse.

**NOTE:** 6002 detection range is achieved by aligning the double arrow along corridor.
MINDER PASSIVE INFRA RED SENSORS

The Minder is a multi-adjustable, passive infrared movement detector. People and animals radiate heat, which is invisible to the human eye (infrared range). Consequently, the recorded infrared energy pattern changes when they enter the detection zone.

DETECTION RANGE DIAGRAMS

Rearfield detection
Additional protection for windows and doors up to the wall of the house, even in case of installation directly above doors and windows, is provided by the integrated rearfield detection.

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>90˚</th>
<th>220˚</th>
<th>280˚</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal range of detection</td>
<td>90˚</td>
<td>220˚</td>
<td>280˚</td>
</tr>
<tr>
<td>Max. frontal range</td>
<td>12m</td>
<td>16m</td>
<td>16m</td>
</tr>
<tr>
<td>Max. bilateral range</td>
<td>6m</td>
<td>16m</td>
<td>10m</td>
</tr>
<tr>
<td>Water protection</td>
<td>IP55</td>
<td>IP55</td>
<td>IP55</td>
</tr>
<tr>
<td>Switch off delay</td>
<td>1-3min</td>
<td>10 sec-30min</td>
<td>10 sec-30min</td>
</tr>
<tr>
<td>Dusk sensor, in Lux</td>
<td>3/15/Lux</td>
<td>0,5-300/Lux</td>
<td>0,5-300/Lux</td>
</tr>
<tr>
<td>Switching Capacity</td>
<td>3680 W/VA</td>
<td>3680 W/VA</td>
<td>3680 W/VA</td>
</tr>
<tr>
<td>Max switching Current</td>
<td>16AX</td>
<td>16AX</td>
<td>16AX</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-25˚C - +55˚C</td>
<td>-25˚C - +55˚C</td>
<td>-25˚C - +55˚C</td>
</tr>
</tbody>
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INSTALLATION

The Minder functions optimally when installed lateral to walking direction. When selecting the installation site, ensure that:

- The minder is not covered by rigid or moveable objects (e.g. roofing elements, branches of tree, etc.).
- When unit is installed above, or lateral to luminaires, a minimum distance is always allowed between the unit and the luminaire, in order to prevent maloperation.
- When the unit is installed below luminaires, it is not heated up as a result of radiant heat from the luminaire.

When mounted at a height of 2.5m, the detection range is as above mentioned, though deviations in the mounting height cause changes in the detection range.

In the case of special conditions at the site (e.g. rows of trees, small plot of land, proximity to road, etc.) the enclosed masking strip can be used to restrict the detection range by sticking it on the Minder lens.

MINDER FAULT FINDING ANALYSIS

<table>
<thead>
<tr>
<th>NATURE OF FAULT</th>
<th>REASON FOR FAULT</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minder does not operate</td>
<td>Lens covered or dirty</td>
<td>Check power supply, uncover and/or clean lens</td>
</tr>
<tr>
<td>Inadvertent operation of Minder</td>
<td>Hot air or smoke e.g. out of kitchens activate Minder</td>
<td>Install Minder at a different location</td>
</tr>
<tr>
<td>Lamp is permanently on</td>
<td>Permanent movement in the monitored area</td>
<td>Make sure that no heat source is in the detection zone and wait until adjusted time lapse has run down. For control purposes, please cover the lens completely.</td>
</tr>
<tr>
<td></td>
<td>Minder is bridged to manual operation by additional switch</td>
<td>Switch to automatic operation</td>
</tr>
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Although every effort has been made to ensure accuracy in the compilation of the technical detail within this publication, specifications and performance data are constantly changing. Latest details can be obtained from Crabtree.