

**PHILIPS**

LRM1070, LRM1080



Product guide

# OccuSwitch movement detector

## LRM1070, LRM1080

The OccuSwitch is a movement detector with a build-in switch. It will switch off the lights in a room or area when it is vacated and thus save up to 30% of electrical energy. The OccuSwitch can switch any load up to 6A and control an office area of around 20m<sup>2</sup>. A detachable mains connector enables easy installation and mounting of the OccuSwitch in the ceiling.

A separate Wieland cable is available for easy, fast and trouble-free installation.

The OccuSwitch family exists of:

- LRM1070 Basic OccuSwitch
- LRM1080 Advanced OccuSwitch
- LCC1070 Wieland cable
- LRH1070 Ceiling mounting box

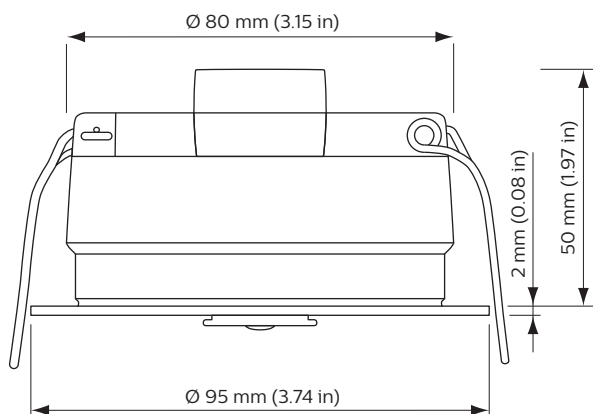


LCC1070 Wieland cable

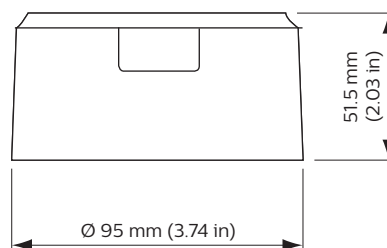
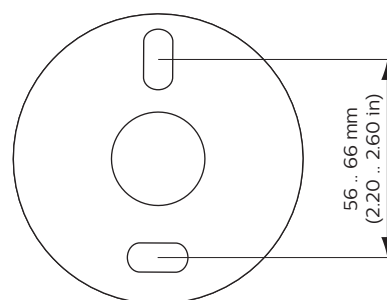
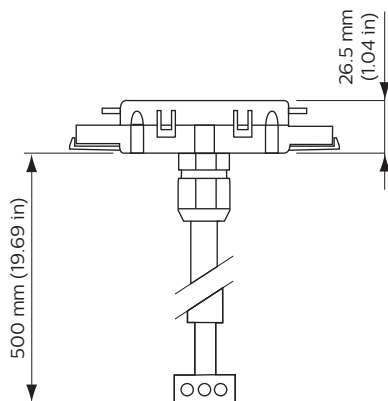
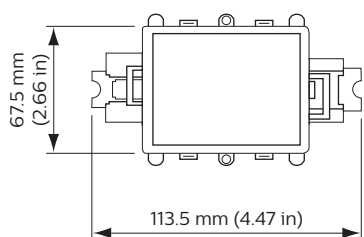


LRH1070 Ceiling mounting box

### Dimensional drawing



LRM1070 Basic OccuSwitch, LRM1080 Advanced OccuSwitch



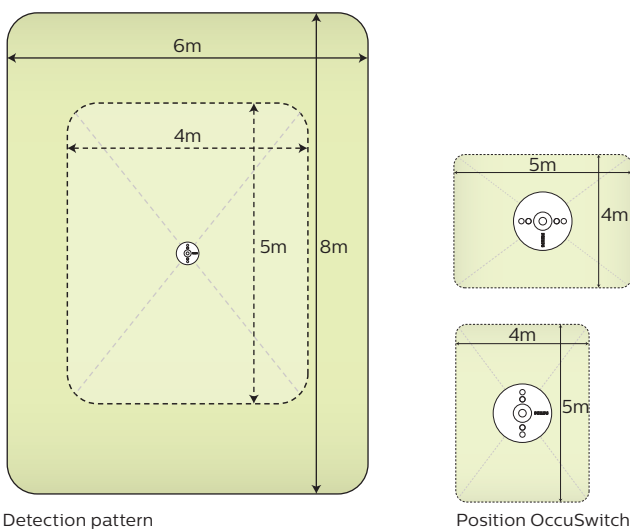
LRH1070 Ceiling mounting box

LCC1070 Wieland cable

# Applications

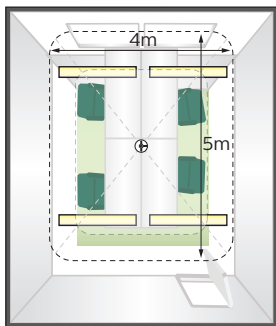
The OccuSwitch is designed for use in offices and similar applications, including toilets, storage rooms, etc. It is optimized for recessed ceiling mounting and for mounting heights between 2.5 and 3.5 meter. The surface box allows surface-mounting as well, with either recessed wiring or surface-mounted ducts. The advanced OccuSwitch can be connected in parallel (max 10) to cover larger area's like open plan offices. The use of different mains groups or even phases is no problem.

The OccuSwitch's detection pattern (see drawing) is 4 by 5 meters for minor movements (desk work) and 6 by 8 meters for major movements like walking.

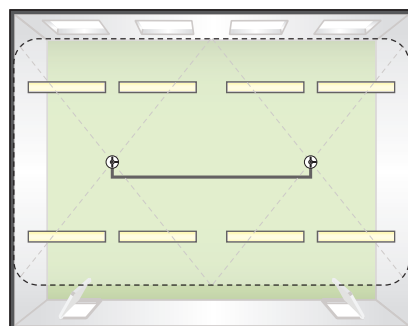


Detection pattern

Position OccuSwitch



Standard application



Parallel operation

## Functions (both versions)

### Automatic control

The OccuSwitch switches the lights on automatically when movement is detected and switches the lights off after the area is vacated (after 1 to 30 minutes depending on the settings).

### Daylight override

It is possible to prevent the automatic switch-on when sufficient daylight is available in order to create additional savings.

### Daylight switching

When daylight switching is active, the lights will automatically be switched off when sufficient daylight becomes available, and turned back on when the light level drops below the required level.

## Functions advanced version

### Parallel operation

It is possible to connect up to 10 OccuSwitches in parallel via a separate bus signal. When one of the OccuSwitches detects movement, all units will switch the lights on. The bus signal is fully isolated, so each OccuSwitch can be used on any mains group or phase, allowing the use of several mains groups in an area and easy wiring.

### Local override

With a remote control it is possible to override the automatic operation of the OccuSwitch, for instance to switch lights off even if there is movement detected.

### Absence mode

When a remote control is used it is also possible to disable the automatic switch-on when people enter the area that the OccuSwitch is controlling.

## Features (both versions)

### Smart timer

The smart timer will extend the delay time by 10 minutes if movement is detected shortly after switch-off, assuming that the area is still in use, but very little movement is made.

### Shield

The OccuSwitch has a retractable shield that can be used to shield off areas like corridors, adjacent to the area the OccuSwitch is controlling.

## Features advanced version

### Remote tool

With a remote control tool (IRT9090) it is possible to change the light level settings without the need to reach for the OccuSwitch itself.

Using the tool it is possible to change the power-up setting from its default (switch-on). The OccuSwitch will not switch on at power-up and will start detection 30 seconds later.

# Mounting

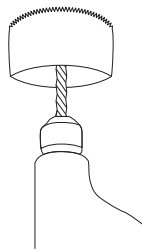
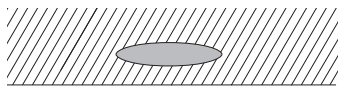
## Fixing

The OccuSwitch can be mounted in two ways; recessed in the ceiling or surface-mounted using the ceiling box.

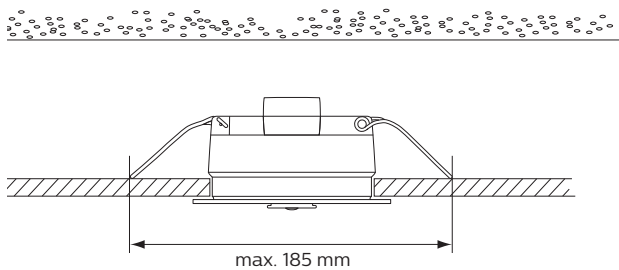
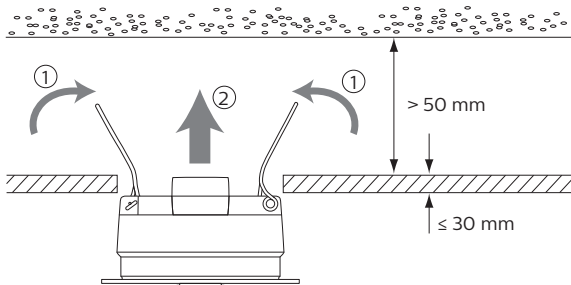
The ceiling box (LRH1070) has breakout ports for cable ducts and a breakout centrepiece.

When selecting a location for the OccuSwitch, avoid obvious cold spots so that condensation does not occur.

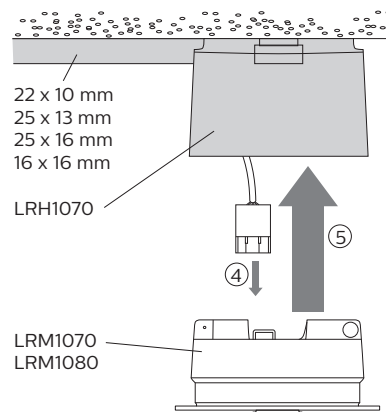
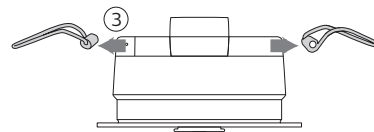
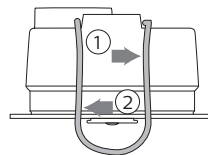
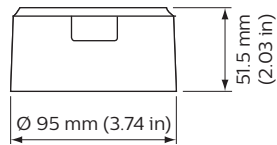
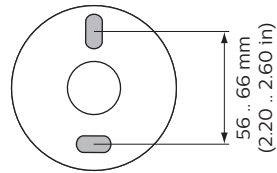
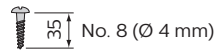
## Fixing the OccuSwitch in a ceiling (recessed)



Ø80-82 mm

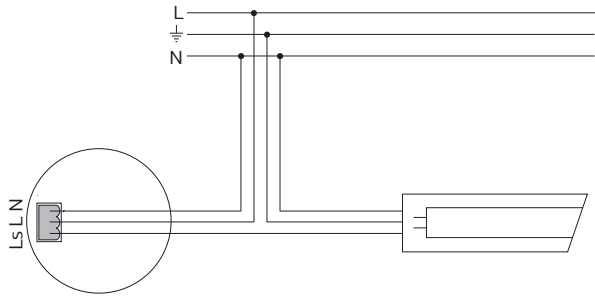


## Fixing the OccuSwitch on a ceiling (surface-mounted)

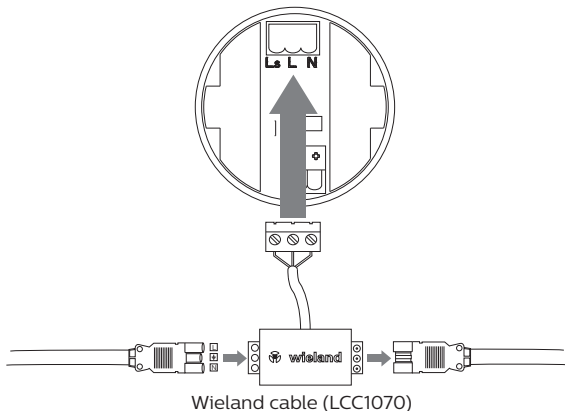


# Electrical Installation

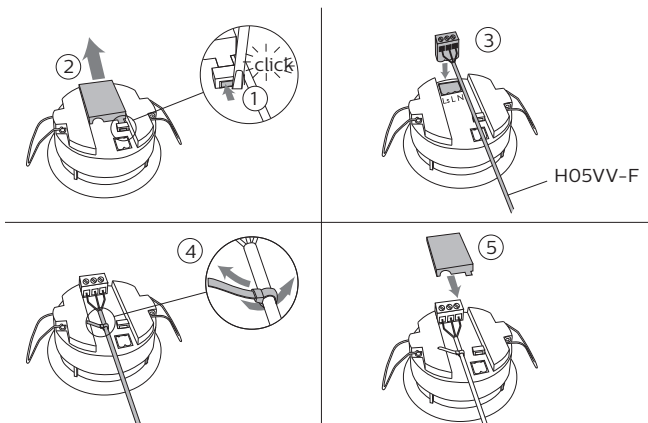
The OccuSwitch can be installed with either conventional wiring or Wieland connectors. For the second option, the Wieland cable (LCC1070) is required. The OccuSwitch comes with a detachable mains connector for easy installation. This connector is removed if the Wieland cable is used. The mains connection is protected by a retractable cover and secured with a tie wrap.



Installation (conventional wiring)



Installation (Wieland)

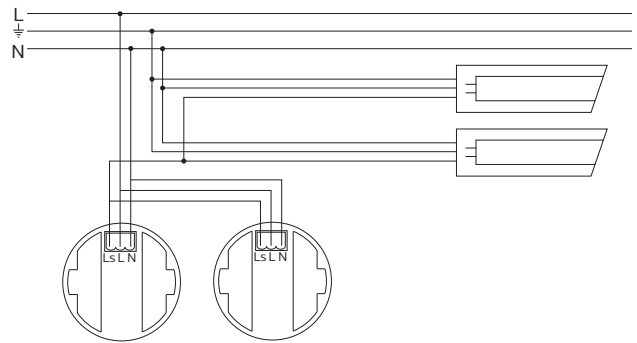


**Note**

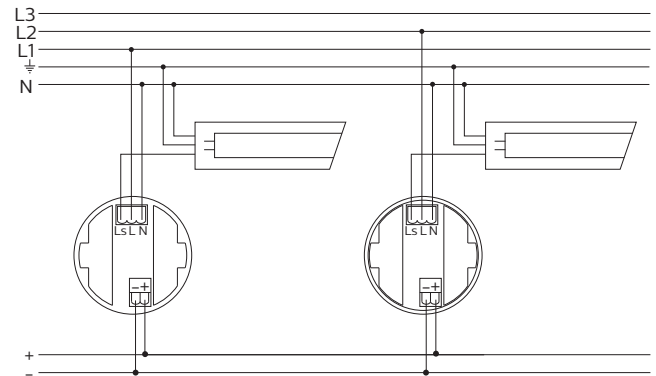
The connector of the OccuSwitch is capable of accepting a wide range of cables (1.5 to 2.5mm<sup>2</sup>), but when heavy ridged cables (especially single core) are used it is strongly advised to make use of the LCC1070 to prevent the OccuSwitch of being pushed out of the ceiling due to the weight of these ridged cables.

## Parallel operation

Parallel operation is used to enlarge the covering area of the OccuSwitch. This can be done in two ways; either by parallel installation or by using the parallel connection of the advanced OccuSwitch (LRM1080). Parallel installation limits the total load to 6A and restricts the application to one mains group. For parallel connection the LRM1080 uses a bus signal to indicate movement detection to other units. All units can be used up to 6A each and with several mains groups (or even phases). A short delay between the different units during switch-off may occur. Max. 10 LRM1080 in parallel.



Parallel installation



Parallel connection (advanced only)

# Commissioning

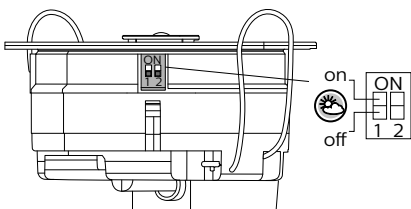
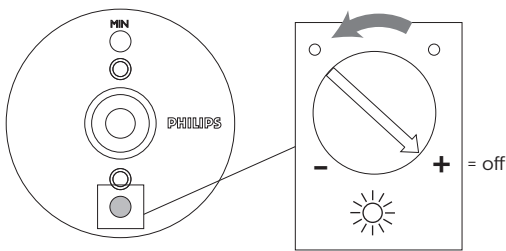
## Daylight control

### Daylight override

The daylight override function prevents the lights from switching on when sufficient daylight is available. To enable this function it is necessary to set the required light level by turning the dial counterclockwise (CCW) away from the OFF position. To disable this function, turn the dial clockwise (CW) into the OFF position.

### Daylight switching

This function will actively switch the lights off if sufficient daylight is available. To enable this function, the DIP switch for this function has to be set to the ON position and the light level must be set (see daylight override). When this function is enabled, lights will switch off when the light level is above 220% for more than 15 minutes. When switching off, the available daylight reaches at least 120% of the required light level. The lights will switch on again when the light level drops below the required level.



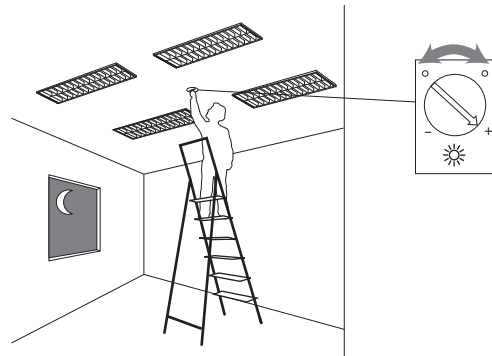
Enabling daylight override and switching

### Note

This function can only work correctly if the required light level is the same as the installed light level. The OccuSwitch will automatically raise the switch-off level if the required light level is set well below the installed light level (for instance 500 Lux required with 1000 Lux installed). This will prevent the lights from switching on and off in a 15 minute cycle. The OccuSwitch can switch off once or twice (with a 15 minute delay) for reference purposes. This cycle will repeat every time the OccuSwitch is reconnected to the mains power.

## Calibration

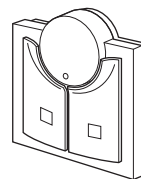
Turn the dial to raise or lower the required light level.



Calibration

## Local control (LRM1080)

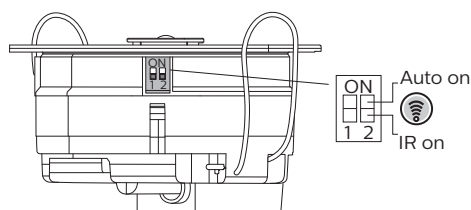
The OccuSwitch LRM1080 (advanced version) will react to commands given by a suitable Philips remote control. There is no special setting required. Although the OccuSwitch will operate with all remotes capable of sending the right codes, the IRT8050 (wall-mounted) is best suited for this application. The OccuSwitch will respond to channel 1 codes (on/off). By default it will respond to group A and general codes. Only with the IRT9090 is it possible to change the group address to make a distinction between different OccuSwitches and remote controls. The OccuSwitch does not react to preset commands. The remote control should be operated within the detection area of the OccuSwitch.



IRT8050

## Absence mode

The OccuSwitch will not switch on the lights automatically in absence mode. A remote control must be used to switch on the lights. The OccuSwitch will switch off after 1 to 30 minutes after the area is vacated. Set the DIP switch in the right position to activate the absence mode.

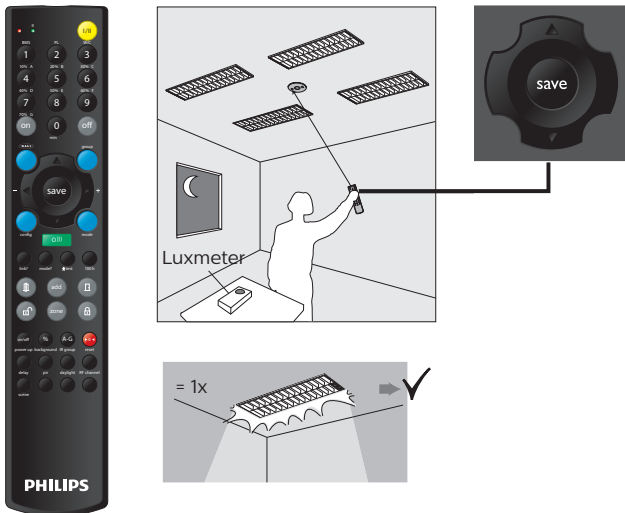


Enabling absence mode

# IRT9090 (LRM1080)

## Set required light level

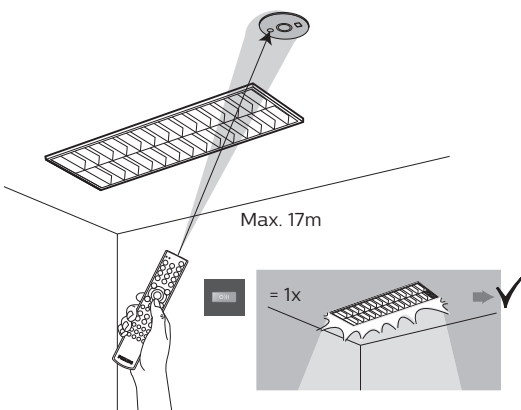
Make certain that the required light level is available and no daylight is entering the area. Calibrate by aiming the IRT9090 towards the OccuSwitch and pressing the “save” button. The lights will flash once to indicate the new level is stored.



IRT9090 Calibrate light level

## Change IR group

Both the OccuSwitch and remote controls can operate in 7 different groups. Both the remote controls and OccuSwitch must be in the same group. Select the “IR group” button on the IRT9090, followed by the desired IR group (A-G, buttons 1 to 7). Aim the IRT9090 towards the OccuSwitch and press the green “send” button. The lights will flash once to indicate the new setting is stored.



Send command

## Change power-up behaviour

The OccuSwitch switches the output on when it is connected to the mains. If the area is vacated the lights will switch off after 5 minutes. It is possible to leave the output off and start movement detection 30 seconds after the mains is connected. On the IRT9090 select the “power up” button, followed by either “on” or “off”. Aim the IRT9090 towards the OccuSwitch and press the green “send” button. The lights will flash once to indicate the new setting is stored.

## Restore defaults

To restore the default settings, aim the IRT9090 towards the OccuSwitch and press the “reset” button.

### Note

The IRT9090 will send the power on and IR group settings together (if changed). To erase previous settings press “reset” followed by “send” on the IRT9090.

### Warnings

The OccuSwitch should not be used in the following situations:

- In applications outside the specification range, most notable heights above 3,5 meter.
- Environmental conditions other than in a normal office environment (temperature, humidity).
- In applications with heat sources like electrical heaters, within the detection range of the OccuSwitch.
- In combination with lighting sources, or other devices, that can be damaged if they are switched off and on in a short period of time.

### Warnings advanced version

The OccuSwitch should not be used in the following situations

- In applications with (semi-continuous) IR appliances like IRDA communication, IR communication between PDA and phones and other devices, headsets operating with IR communication, etc. Please note that some devices with IR communication send IR messages, even when there is no communication link. These features must be disabled.
- In applications with electronic ballasts that operate up to or near the IR transmission frequency of 36Khz. Also when these ballasts are not used in combination with the OccuSwitch, but the light from the lamps they operate is visible to the IR receiver.

# Specifications

## Mains connection

Voltage	230V <sub>AC</sub> +/10%; 50/60Hz
Maximum load	6 A. (1380 VA) any load
Connector screw terminal	MRT3P7.62-3VE or GMVSTBW2.5/3-ST-7.62
Maximum wire range	1.5 to 2.5mm <sup>2</sup>
Mains distribution system	TN-S, 16A max, with Neutral grounded
Power consumption	
Stand-by	1.2 W
Max.	1.2 W

## Environmental

Temperature	+5 to +50°C (operating) -20 to +70°C (storage and transport)
Relative humidity	20% to 90% (no condensation)

## Parallel interface

Maximum	10 units in parallel SELV signal, max 5 V. Free Topology Wiring
Polarity	sensitive
Connector type	screw terminal CPF5.08-2VE or MSTB2.5/2-ST-5.08
Maximum wire range	1.5 to 2.5mm <sup>2</sup>
Maximum length	100m

## Settings

LED indicator	Red on movement detection
Switch off delay	1 to 30 minutes
Light levels	250 to 1000 Lux (30% reflection)
Detection range	see diagram The remote control and light sensor work in a similar range.

## Compliances and approvals

Standards	EN/IEC 60669-2-1 Electronic switches
Classification	Class I
Pollution	degree 2
Over voltage	category III
Approbation	Product complies with the relevant European Directive (CE)
KEMA	
EMC	
Compliance	IEC (EN) 60669-2-1
Immunity	IEC (EN) 61547
Emission	IEC (EN) 55015 and IEC (EN) 55022, class B

## Housing

Protection Class	IP20
Flammability	UL94 V-0
Glow wire test	960°C/5s.
Insulation Double insulation	(4kV) between Mains and SELV
Weight	0.2 Kg



# Data

## Packing data

Type	Box dimensions (mm)	Qty	Material	Weight (Kg)	
				net	gros
LRM1070 Unit box	105 x 95 x 58	1	cardboard	0.12	0.15
LRM1070 Outer box	400 x 300 x 300	42	cardboard	5	5.6
LRM1080 Unit box	105 x 95 x 58	1	cardboard	0.12	0.15
LRM1080 Outer box	400 x 300 x 300	42	cardboard	5	5.6
LRH1070 Unit box	105 x 95 x 58	1	cardboard	0.044	0.07
LRH1070 Outer box	400 x 300 x 300	42	cardboard	1.8	2.4
LCC1070 Unit box	90 x 90 x 90	1	plastic bag	0.13	0.17
LCC1070 Outer box	289 x 214 x 178	18	cardboard	2.4	2.7

## Ordering Data

Type	MOQ	Ordering number	EAN code level 1	EAN code level 3	EOC
LRM1070/00 OccuSwitch basic	1	9137 003 27803	8711559 731384	8711559 731391	731384 99
LRM1080/00 OccuSwitch advanced	1	9137 003 27903	8711559 731407	8711559 731414	731407 99
LRH1070/00 Ceiling box	1	9137 003 28003	8711559 731438	8711559 731421	731438 99
LCC1070/00 Wieland cable 3p	1	9137 003 30303	8711559 731773	8711559 731780	731773 99

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