Installation Instructions

Honeywell ● Ex-Or
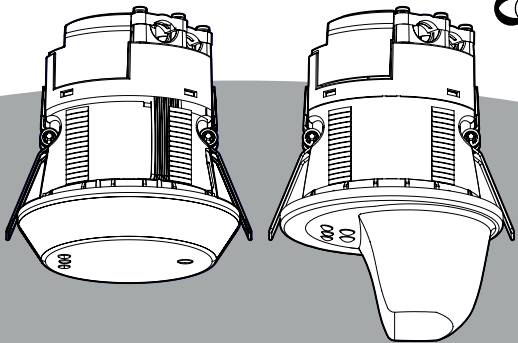

Mxx3421 & Mxx3500 High Detection Microwave Sensors

⚠️ **Only suitably qualified personnel should install this equipment**

32355476-001 REVC 25-Jul-2022

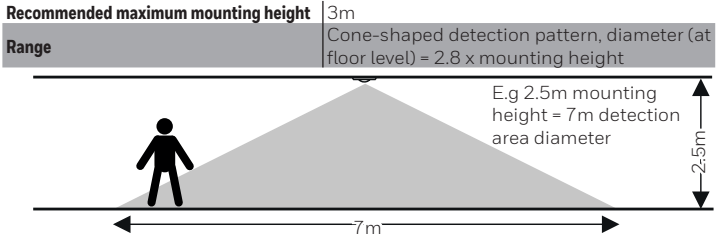| Part Number	Flush Mount	Switch Input (Mains)	Switched Live Output	Volt free output	Connect to MLS	Connect to DALI Bus	360 degree sensing	Directional Sensing	24hr mode	Lighting scenes	OneSwitch dimming
MLS3421DRF	●	●		●	●			●		●	●
MLS3500DRF	●	●		●		●	●			●	●
MR3500DRF	●	●		●		●	●			●	
MR3500RF	●	●		●			●			●	
MR3421R2F	●		●	●					●		

Security

For details of securing the product and system see the General Security Best Practice for Ex-Or Products Information Sheet - D6004.

1) Determine Position

The Mxx3421 & Mxx3500 sensors are extremely sensitive movement detectors. They must be installed on a rigid surface that will not be subject to movement or vibration. They are not recommended for applications where there are large surface areas of metal, e.g. metal ceiling or floor tiles, as unpredictable sensitivity may result. Microwaves can penetrate lightly built partitions, glass, etc. Movement in adjacent spaces may cause spurious triggering if the orientation and sensitivity setting of the detector is not managed carefully.

Mxx3421

Do not mount within 0.25m of a luminaire. Max distance between sensors = 5m

Recommended maximum mounting height	3m
Range	Cone-shaped detection pattern, diameter (at floor level) = 2.8 x mounting height

E.g 2.5m mounting height = 7m detection area diameter
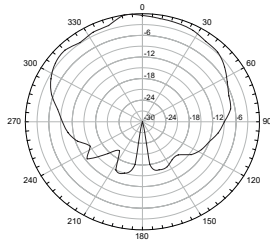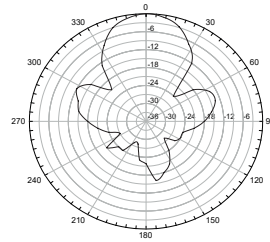
Mxx3500

Position the detector where it has a good 'view' of the space to be controlled. An ideal location is in a corner adjacent to the entrance of a room or at one end of a corridor. Do not mount within 0.25m of a luminaire.

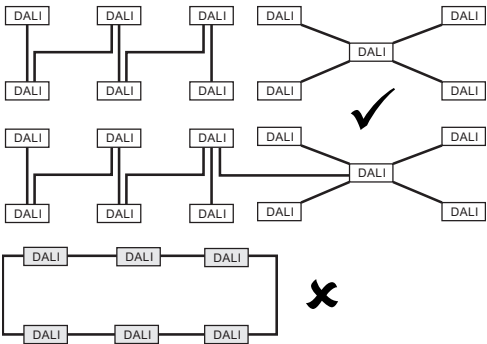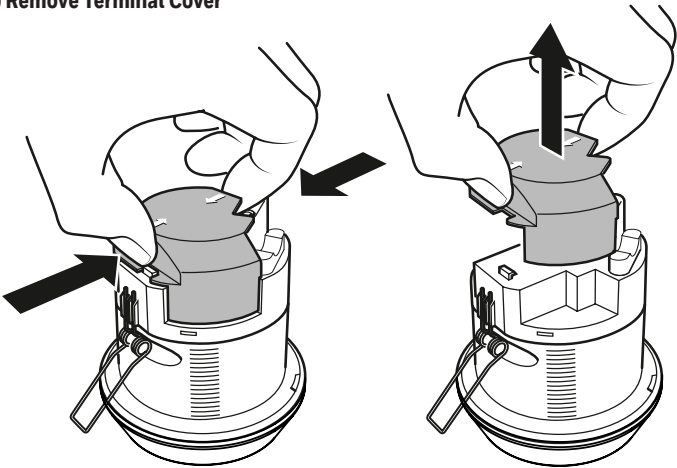| Recommended maximum mounting height	3.5m
Range	Adjustable up to 20m

Horizontal   Vertical

2) Plan DALI Cable Runs

DALI Topology

DALI permits a free topology which means wiring can be done in daisy chain, star or a combination of these. Do not close the loop or ring connections.
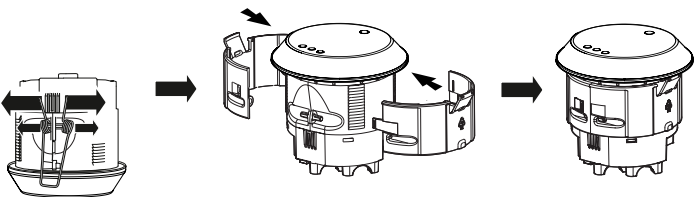

3) Remove Terminal Cover

4) Fit Flush Mount Version

4a) Prepare Mounting Location and Run Cables

73mm

Drill hole

Route cables through hole and secure LOCKRING (if used)
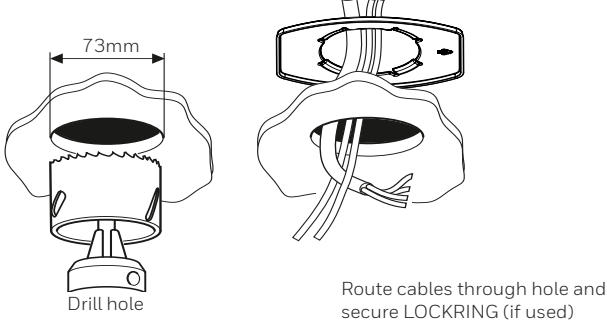
4b) Make Electrical Connections

Make the electrical connections to the sensor - see "Make Electrical Connections"

4c) Fix Cable Clamps (optional for 1mm²-2.5mm² sheathed round cables)

Cable clamps can be reversed to reduce aperture

Note: If using cables larger than 3x1.5mm² the outer sheath on the supply cable should only be removed after the sheathed cable has been clamped in position.

4d) Replace the Terminal Cover

Insert screw for Class II compliance

4e) Fix to Ceiling

Standard Method

Ceiling tile thickness 1 to 20mm

LOCKRING Method

The LOCKRING cannot be used when there is no access to ceiling void.

LOCKRING

Remove springs

Ceiling tile thickness 1mm to 20mm

NOTE: To remove sensor rotate LOCKRING and pull up

5) Fit Surface Mount Version

Note: If a surface mount version has been ordered a flush mount version and a surface mount kit will be provided.
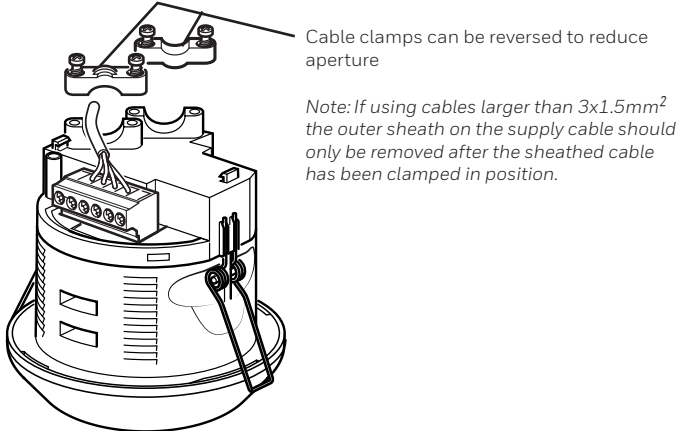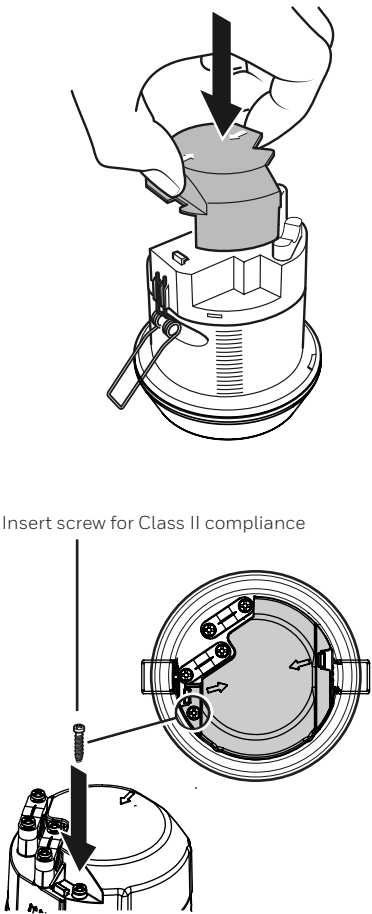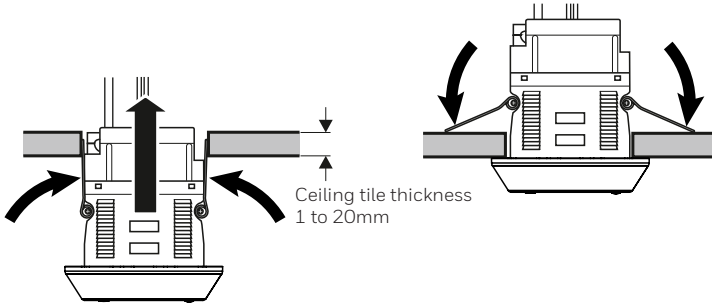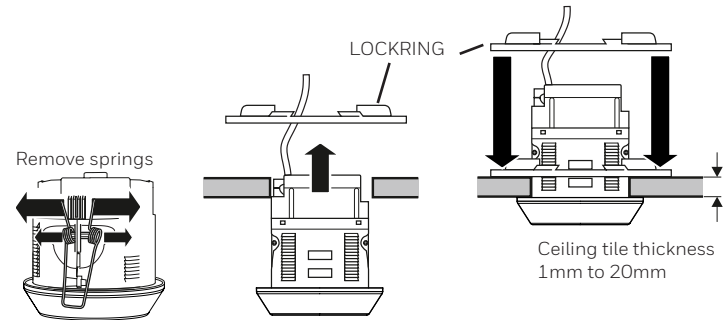
5a) Remove springs & Attach Shell

5b) Attach Conduit Fittings & Cable Glands to Lower Housing (if required)

Drill 20mm hole

2 x washers (supplied)

Conduit fitting (not supplied)

Tighten the locking nut. The inner washer can be omitted if there is insufficient thread available
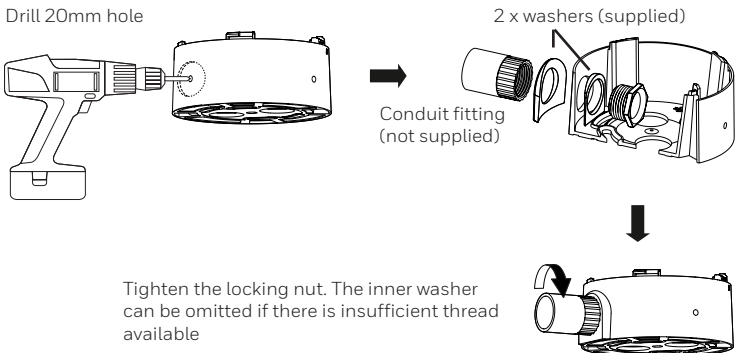
5c) Prepare Mounting Location and Run Cables

The sensor may be mounted to any suitable surface, but is most commonly fixed to a conduit stop-end (BESA) box or bushed to trunking. change image
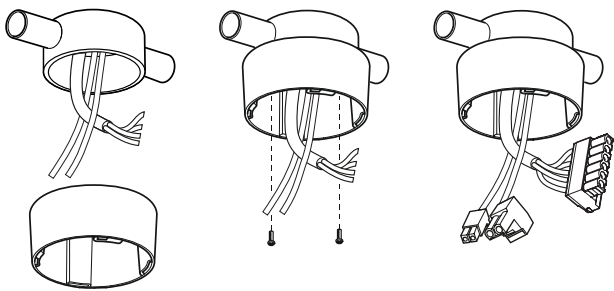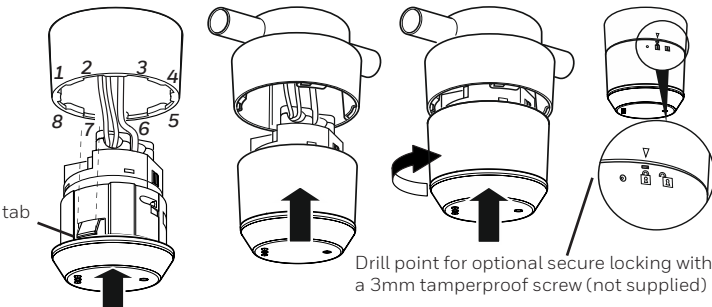

5d) Make Electrical Connections

Make the electrical connections to the sensor - see "Make Electrical Connections"

5e) Fix to Ceiling

8 segments on the collar allow up to four different rotational positions for the sensor, when inserting the tabs into slots (1-8).
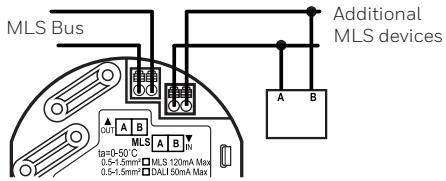

tab

Drill point for optional secure locking with a 3mm tamperproof screw (not supplied)

6) Make Electrical Connections

WARNING: Do NOT power up until installation is complete.

WARNING: ALL plug-in terminals MUST be connected and the cover must be in place before the unit is powered up.
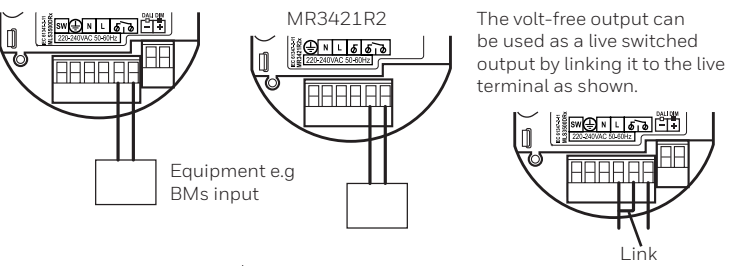
MLS Bus Connections - MLS variants

MLS Bus

Additional MLS devices

Terminal type	Screwless with release lever
Terminal capacity	1 x 0.5-1.5mm² solid or stranded.
Recommended cable	1.5mm² unscreened twisted pair
Max cable length	Up to 1500m - If using 1.5 mm² unscreened twisted pair cable.

Volt-free Output Connections
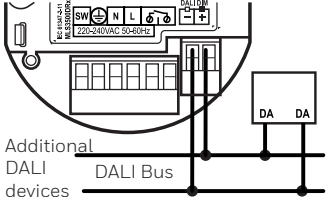
MR3421R2

The volt-free output can be used as a live switched output by linking it to the live terminal as shown.

Equipment e.g BMs input

Link

Terminal type	Rising cage screw clamp
Terminal capacity	1 x 0.5-2.5mm² solid or stranded.
Recommended cable	2 core 1.5-2.5mm²
Switching Capability	10A

DALI Bus Connections - DALI variants

To prevent loose strands being outside the terminal a tool, e.g. a screwdriver, must be used to push the button on the terminal when stranded conductors are inserted.

Additional DALI devices

DALI Bus

Warning: Do not connect to 230V.

Warning: The DALI Bus is not classified as SELV. The same procedures and safeguards must be applied as when working with mains voltage.

Terminal type	Rising cage screw clamp	
Terminal capacity	1 x 0.5-1.5mm² solid or stranded.	
Recommended cable	2 core 0.5-1.5mm²	
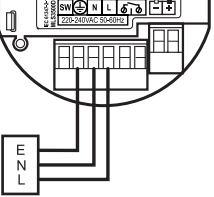
Max cable length		Cross Section	Maximum cable length at 25 °C
	Copper	0.5 mm²	112m
	Copper	0.75 mm²	168m
	Copper	1.0 mm²	224m
	Copper	1.5 mm²	300m

Max devices	25 DALI control gears (ballasts or drivers) - 50 mA

Note:
1. *DALI gears (ballasts or drivers) are normally wired from an unswitched supply.*
2. *Ballasts or drivers must be DALI Control Gears complying to IEC 62386 V1 or V2.*
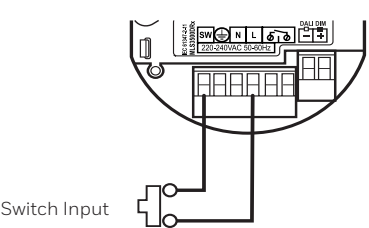
Power Connections

Terminal type	Rising cage screw clamp
Terminal capacity	1 x 0.5-2.5mm² solid or stranded.
Recommended cable	Refer to appropriate regulations
Max cable length	Refer to appropriate regulations
Operating voltage	220 – 240V 50-60Hz.
Quiescent power consumption	1W
Recommended circuit protection	10A MCB

Note: In accordance with current wiring regulations a means of disconnection (e.g switch) must be incorporated into the fixed wiring.
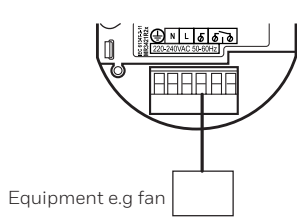
Switch Input (Mains) Connections - Not MR3421R2

Switch Input

Terminal type	Rising cage screw clamp
Terminal capacity	1 x 0.5-2.5mm² solid or stranded.
Recommended cable	Derive from appropriate wiring regulations
Max cable length	Derive from appropriate wiring regulations
Operating voltage	100 – 240V 50-60Hz.
Power consumption	Negligible

Switch Live Output Connections - MR3421R2F only
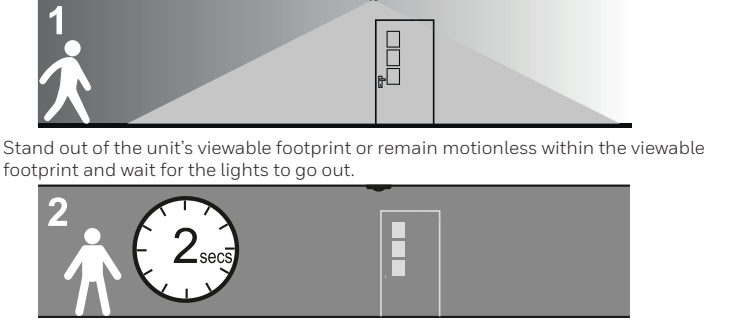
Equipment e.g fan

Terminal type	Rising cage screw clamp
Terminal capacity	1 x 0.5-2.5mm² solid or stranded.
Recommended cable	2 core 1.5-2.5mm²
Operating voltage	100 – 240V 50-60Hz.

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7) Perform Walk Test

In order to verify correct installation, walk testing is recommended. Follow the instructions provided with the QuicksetPro (QSP). During the walk test the connected lights will be switched off until movement is detected.

1

Stand out of the unit's viewable footprint or remain motionless within the viewable footprint and wait for the lights to go out.

2 2 secs

Wait a further 2 seconds for the unit to stabilise then make a movement, the lights should come back on. Observe that the detection / non-detection is as expected.

8) Out of Box Behaviour

This range of products features a rich set of adjustable parameters that may be programmed via the hand-held infrared commissioning tools in order to create a sophisticated lighting control installation.

Time Delay	20 Minutes
Photocell Mode	Ignore (Always turn on when occupied)
Occupancy Mode	Presence (lights Auto On, Auto OFF)
Movement Sensitivity	Medium

9) Diagnostics
LED indications are provided to help with fault-finding.

| LED indication	Meaning
Green	Movement detected
R R R Flashing Red	Hardware or firmware fault. Check DALI connections for shorts.
B B B Flashing Blue	IR communication in progress

10) Configuration

Once installed the unit must be configured using the QuicksetPro (QSP) to create the required lighting control installation - see the QuicksetPro Engineering Manual – W6001 available from www.Ex-Or.com. The QSP provides context help on the individual parameters.

www.Ex-Or.com

⚠ IMPORTANT NOTES

1. The sensor must be positioned such that it detects a substantial proportion of artificial light from the luminaire(s) under its control for effective light regulation
2. Only suitably qualified personnel should install this equipment.
3. A means for disconnection must be incorporated in the fixed wiring in accordance with current wiring regulations.
4. Frequent switching may adversely affect the life of the luminaire. Please check with the manufacturer of the luminaires to ensure that they are compatible with automatic controls in this respect.
5. All information given in this document was correct at the time of publication.

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Uninstall surface mount variants

Insert a flat headed screwdriver into the slot as shown and twist the collar anti-clockwise to release. To separate the sensor from the surface mount casing, push a flat headed screwdriver onto the tab via the inside void of the casing and pull the unit appart.

Tab

If fitted remove tamperproof screw

Max 4mm
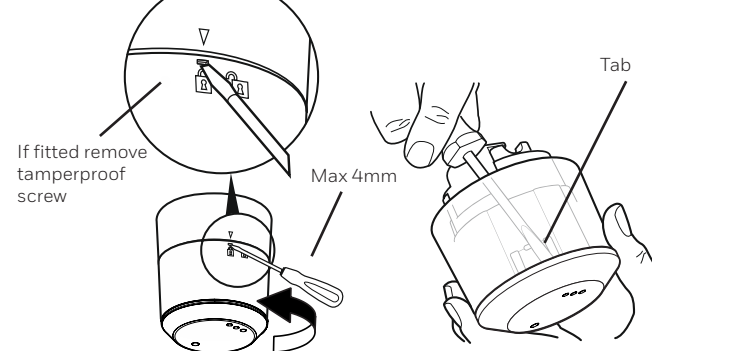
Specifications

Photocell	Adjustable 0 - 5000 lux (with a 20% reflective work plane)
IP Rating	IP20
Operating temperature	0°C to 50°C
Dimensions	
Flush mounting	Height 93.5mm, diameter 87mm
Surface mounting	Height 108.5mm, diameter 87mm
Weight	
Flush mounting	154g
Surface mounting kit	259g
Colour	White (RAL9010)
Material	Flame retardant PC/ABS
Max recommended load	10 Amps per output (not exceeding 10A in total)

UK CA

CE

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