

Dual Technology Wall Mounted Occupancy Sensor

Manual & Specification



**PRODUCT MUST BE INSTALLED IN ACCORDANCE
WITH LOCAL ELECTRICAL CODES**

1. INTRODUCTION

1.1. GENERAL DESCRIPTION

The Diversa Occupancy sensors use Passive-Infrared (PIR) and Accurate Detection Intelligence (ADI) Voice sensing technologies to determine the presence of people within a defined region of detection and perform designed control actions when occupancy (or vacancy) is detected.

The WOW Series of sensors are designed to mount on ceilings giving a 90° or 130° coverage pattern. The low voltage edition of the sensor gives the capability of operating and controlling the WP-PP20-D power pack and other Diode Pulse equipment.

This manual covers the following part numbers:

WOWCDD2-R-N

WOWLDD2-R-N

WOWCDD2-DPR-N

1.2. OPERATIONS

Low voltage sensors are powered by 24VAC from either the WP-PP20-D or a 24VAC transformer. If a single base model sensor is used to operate a relay directly, the sensor can be powered utilizing only the white and red wires.

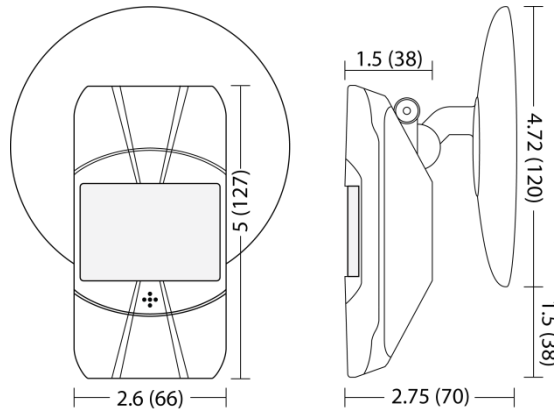
When in operation the sensor will detect initial motion using PIR. Once motion is detected, the signal to turn on the lights is sent to the power pack. ADI-Voice is then activated to work alongside PIR to maintain the occupied condition as long as people are within the sensing range.

There are two LEDs behind the lens: Yellow indicates ADI-Voice detection, Green indicates PIR detection. These indicators can be disabled.

1.3. SPECIFICATIONS

1.3.1 Dimensions & Mounting:

Size: 5" high x 2.6" wide x 1.5" deep
 Weight: 6.4 oz
 Mounting: Surface Mounted; octagon junction box.
 Color: Off-white



1.3.2 Power:

Low Voltage: 24 VAC \pm 25% class 2 source.
 Frequency: 60 Hz
 Consumption: 9.5 mA Standard
 14.0 mA with Auxiliary Relay

1.3.3 Inputs:

Sensor Link: 24VAC, Maintained/Diode Pulse.
 Type defines function as explained in the 'Sensor Link' section.

1.3.4 Outputs:

Diode Pulse: Each output is capable of driving one WP-PP20-D
 0-10V Dimming Use to control up to 50 Ballasts. Connections are polarity sensitive.
 Aux Relay SPDT Form-C contact rated for 1A at 30VDC

1.3.5 Operation Temp:

14° to 140°F (-10° to 60°C)
 Low temp and high humidity option [-L] products: PCB conformal coated for resistance to damp environments and operation to -40°C/F

1.3.6 Storage temp:

-14° to 140°F (-25° to 60°C)

* Application and Performance Specification Information Subject to Change without Notification.

1.4. OPTIONS

Series	Range	Tech	Voltage	Poles	Options
WOW	C = Corner L = Large Area	D = Dual I = PIR Only	D = Diode Pulse	1 2	-N = None -P = Photo -D = Dimming -R = Aux. Relay

Range:

Corner (C)	Designed for installations with a 90° coverage pattern at 8-10ft mounting height, 70ft range.
Large Area (L)	Designed for installations with a 130° coverage pattern at 7-10ft mounting height, 60ft range.

Technology:

Dual (D)	Utilizes PIR and ADI-Voice technology
PIR Only (I)	Utilizes PIR Only

Voltage:

Low Voltage	Sensor is powered from 24VAC Class 2 power source
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Poles:

1	Single pulse output
2	Two pulse outputs

Options:

Photo (P)	Photocell controlled loads.
Dimming (D)	The sensor regulates a 0-10VDC dimmable ballasts to maintain a constant light level even if natural ambient light changes.
Aux. Relay (R)	Auxiliary contact relay for interfacing with other systems. An isolated SPDT form-C contact is provided for signaling.

1.5. ACCESSORIES

WIR-3110	IR Setting Unit. The WIR-3110 Setting Unit is used for touchless programming of the sensor.
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2. INSTALLATION & WIRING DIRECTIONS

2.1. Installation

Mounting of the device requires a 2-1/8", octagonal junction box. Install by surface mounting the arm on the octagon box; lining up the mounting holes and securing it using the screws provided.

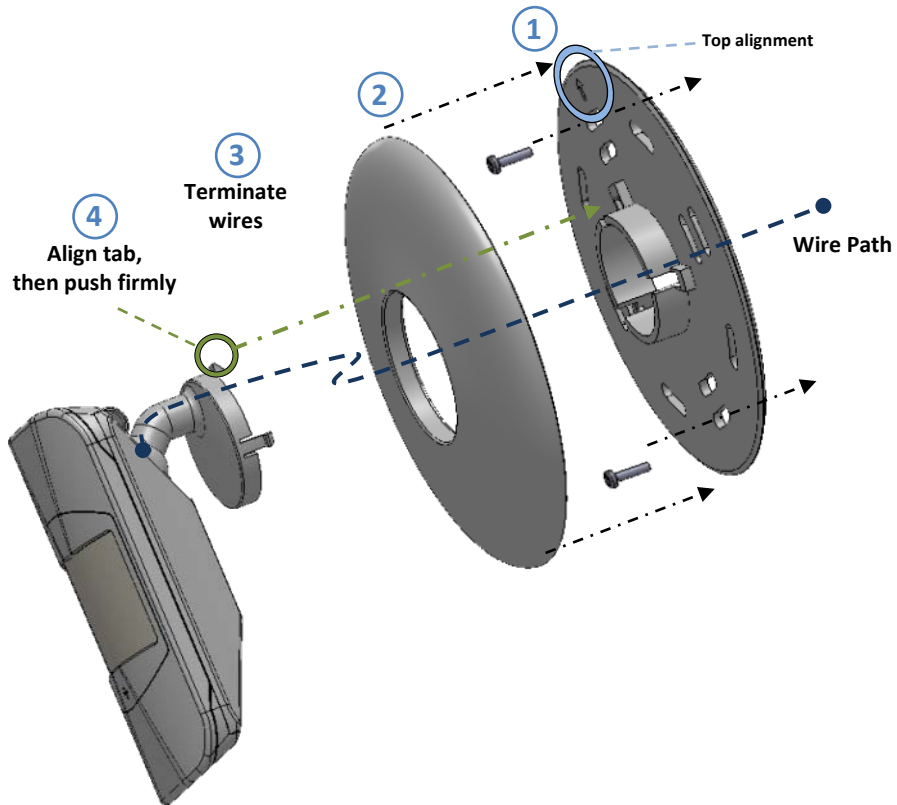
To enhance the performance of your *Diversa* Occupancy Sensors with Accurate Detection Intelligence (ADI-Voice) please review the following installation guidelines carefully. Following these guidelines as closely as possible will improve the closed loop operation of the sensor, result in better set point selection and allow for greater range of dimming (on models with Dimming option):

- Consult Product Manual (see guideline in quick start sheet) for coverage pattern and ranges for the specific model to be installed
- The microphone works best when it is pointed at the space to be occupied
- Ensure that the sensor is at least 30" away from air handlers/registers and not pointed directly at windows
- Check that you are installing the right product (check the product model number) as per the drawings
- Outside the direct cone of light from fixtures & between 3 and 12 feet from a Window
- As close as possible to the fixture being controlled
- Above the least illuminated space in the work area
- Away from lighting that is not being controlled by the sensor

The room dynamics will change when people and furniture are actually occupying the space, some sensors may need to be tuned to specific rooms after move in. Occupants should expect some adjustment and fine tuning.

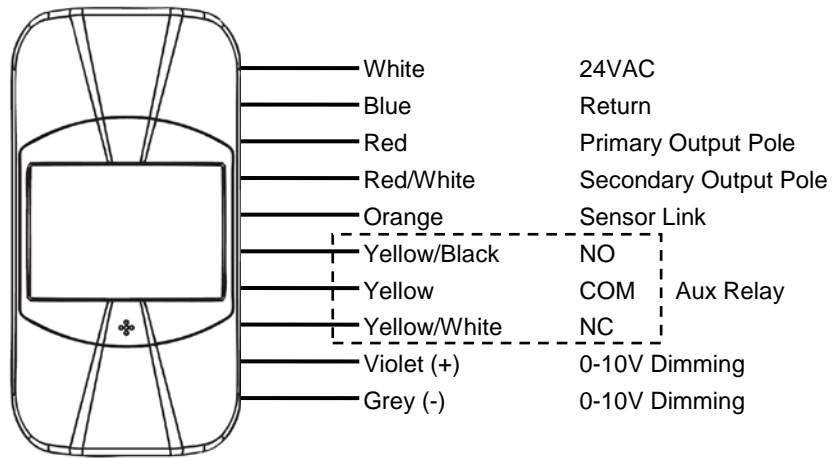
2.2. Wiring

The WOW Series Low Voltage sensors are equipped with plug-in harness for easy installation. This harness has #20 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

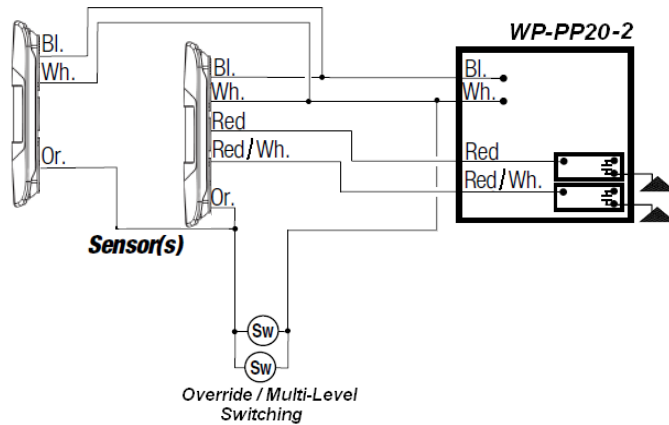


2.3. Electrical Connections

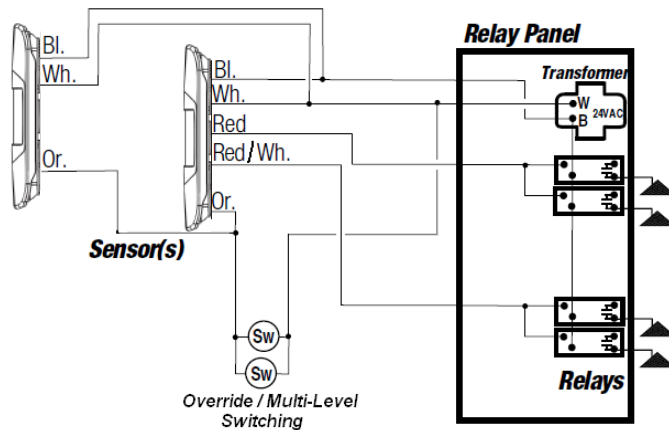
Wire Legend



Wiring to a Power Pack



Wiring to a Relay Panel



3. FEATURES AND OPTIONS

3.1. DIP Switches

A bank of eight DIP switches and two rotating controls are used to manually setup and configure the sensor.

WOW - - - - '-RN'-				
DIP	Function	ON	OFF	Default
1	Voice Detection	Disabled	Enabled	OFF
2	Motion Detection Sensitivity	High	Normal	OFF
3	Detection LED	Disabled	Enabled	OFF
4	Auto or Manual ON	Occupancy (On)	Vacancy (manual on)	ON
5	Not Used	n/a	n/a	OFF
6	Not Used	n/a	n/a	OFF
7	Manual Override Button	Disabled	Enabled	OFF
8	Settings Input	IR Setting Unit (WIR-3110)	Manual Dips/Dials	ON

*Available in 2-Pole models (-2) only

WOW - - - - '-DPR'-				
DIP	Function	On	Off	Default
1	Voice Detection	Disabled	Enabled	OFF
2	Motion Detection Sensitivity	High	Normal	OFF
3	Detection LED	Disabled	Enabled	OFF
4	Auto or Manual ON	Occupancy (auto-on)	Vacancy (manual on)	ON
5	Photocell Inhibit*	Photocell Disabled & Fixed Dim Level	Photocell Enabled & Auto Dim Level	OFF
6	Photocell Control*	Inhibit primary Pole Only	Inhibit Both Poles	OFF
7	Manual Override Button	Disabled	Enabled	OFF
8	Settings Input	IR Setting Unit (WIR-3110)	Manual Dips/Dials	ON

*Available in 2-Pole models (-2) only

3.2. Programming - IR / Manual Setting

Programming can be done either with the DIP switches and dials on-board the device or with the WIR-3110 setting unit. For more details and additional options please see the “WIR-3110 Manual”

3.3. Detection (Dual or PIR Only)

When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

3.4. Automatic Timeout

By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort. The “Auto Timeout LED” will be lit to indicate that this mode is activated.

3.5. Smart Sensing

When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

If the PIR detection is not triggered after 2 hours, the lights will turn off regardless of the ADI-Voice status. This compensates for situations such as a radio being left on.

3.6. Vacancy Sensor

The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually.

The low voltage sensor has a built-in override input; this allows for the sensor to be operated as a vacancy sensor by giving the ability to a switch to turn the lights on. For two pole sensors, it provides multi-level control capability.

If setup for occupancy ON/OFF control, the switch input may be used for manual control of the lights. Reset (to auto on/off control) occurs when occupancy is no longer detected and the timeout expires.

3.7. Sensor Link

The low voltage sensor is equipped with a connection which facilitates communication between sensors. The sensor link (orange wire) allows multiple sensors to coordinate their signals and act together as a cohesive zone.

This connection provides additional control functions as described below.

Diode Pulse: When a Douglas (pulse) switch is connected to the sensor link it provides manual control. This can be used to toggle the lights ON/OFF. In the case of two pole sensors, it provides optional multi-level sequencing control.

Maintained AC: If a maintained AC signal is applied to the sensor link, the sensors will be in an override mode. By default the sensor will turn the lights ON when disabled by this override. This is adjustable via the IR setting unit.

3.8. Multi-Level Switching (2-Pole without Photo Sensing option)

A switch on the sensor link can be used to either trigger both poles simultaneously (default), if required sensor step through a multi-level sequence. Please see the “WIR-3110 Manual”

3.9. Photo Sensing (-P)

Photo-switching control can be enabled or disabled. The photo sensing option can be configured for 2 types of functionality. Please see “WIR-3110 manual section 2.8”

3.9.1 Type: Inhibit

When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected **AND** there is a deficiency of natural light (as determined by a programmable set point off), the output is triggered on. Once on, the output remains on until a vacancy condition is determined by expiration of the vacancy timer. An increase in natural light will not force the lights off. Inhibit function can be configured to inhibit override switch as well.

3.9.2 Type: On/Off

If occupancy is detected **AND** there is a deficiency of natural light (as determined by a programmable set point), the output is triggered on. Once on, the output remains on until a vacancy condition is determined by expiration of the vacancy timer. An increase in natural light will allow the lights to turn off and as the ambient light level drops the lights will turn on automatically.

3.10. Daylight Harvest Dimming (0-10V Output) (-D)

The 0-10V output can operate upto 50 ballasts. This output can be used for either a fixed tuned lighting level or a fully active daylight harvesting.

When set to fixed dim the dial can be used to raise or lower the light level. When set for photo dimming the dial is used to select top trim. This dial is used to set the maintained light level by initiating a photo capture.

To trigger a photo capture from the device:

1. First adjust the light level using the dimming dial to the desired level.
2. Set the “Button Enable/Disable” Dip Switch (#7) to Disable.
3. Hold down the manual button
4. While holding down the button, set the “Button Enable/Disable” dip switch (#7) to enable. At this point the yellow LED will blink for 1 second.
5. Release button and step away from the sensor.
6. Wait 15 seconds. The yellow LED will blink, the device photo captures the current light level.
7. 15 seconds after this, the dimming override will expire and the sensor will return to normal.
8. Raise the dimming dial to the set the top trimmed level and flip the manual button override dip (#7) for to normal operation.
9. After 30 seconds the light will regulate.

3.11. Multi-Level Photo Sensing (2-Pole with Photo Sensing Option)

This feature will inhibit manual switching, if adequate light is present.

Photo sensing on a 2-pole sensor can be configured to the primary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting.

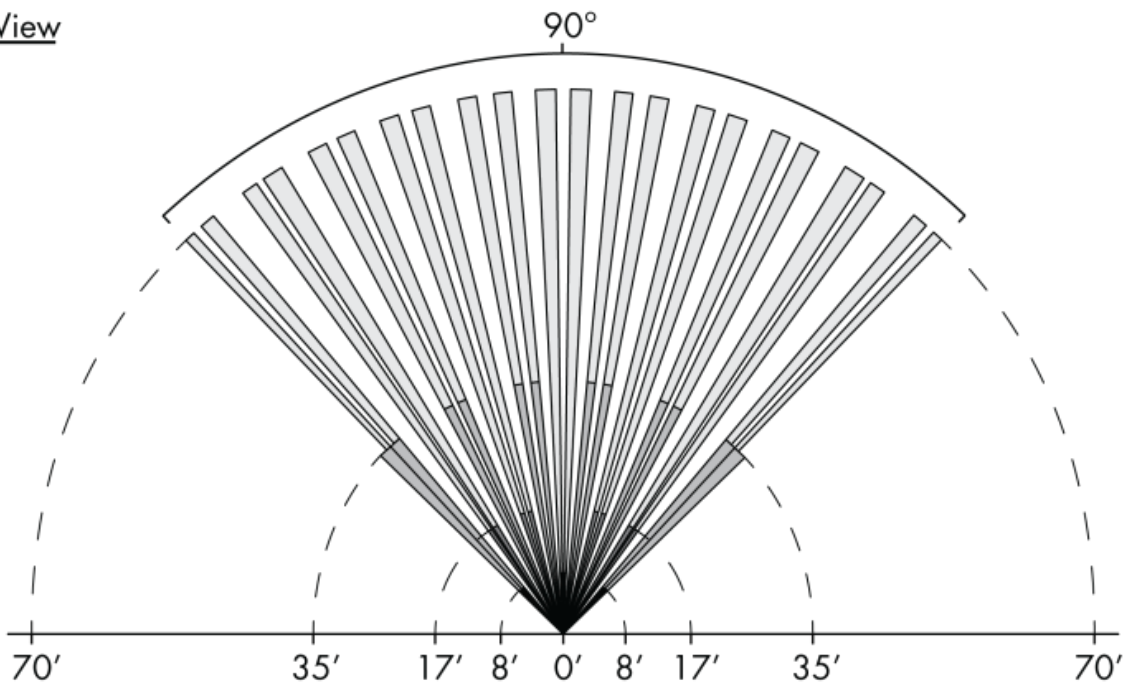
Please see the “WIR-3110 Manual”.

4. COVERAGE PATTERNS

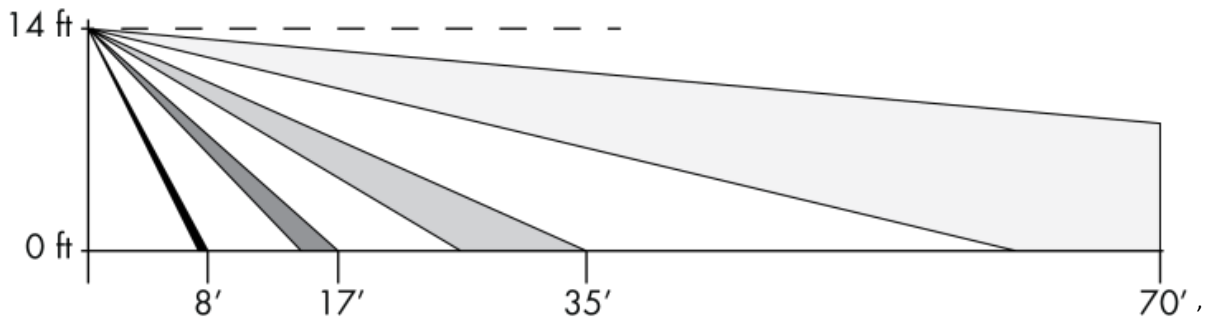
4.1. Corner Lens

- Optimal usage is to detect small motions such as hand movements.
- Coverage of 90°
- Designed for a mounting height of 8-10ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

Top View



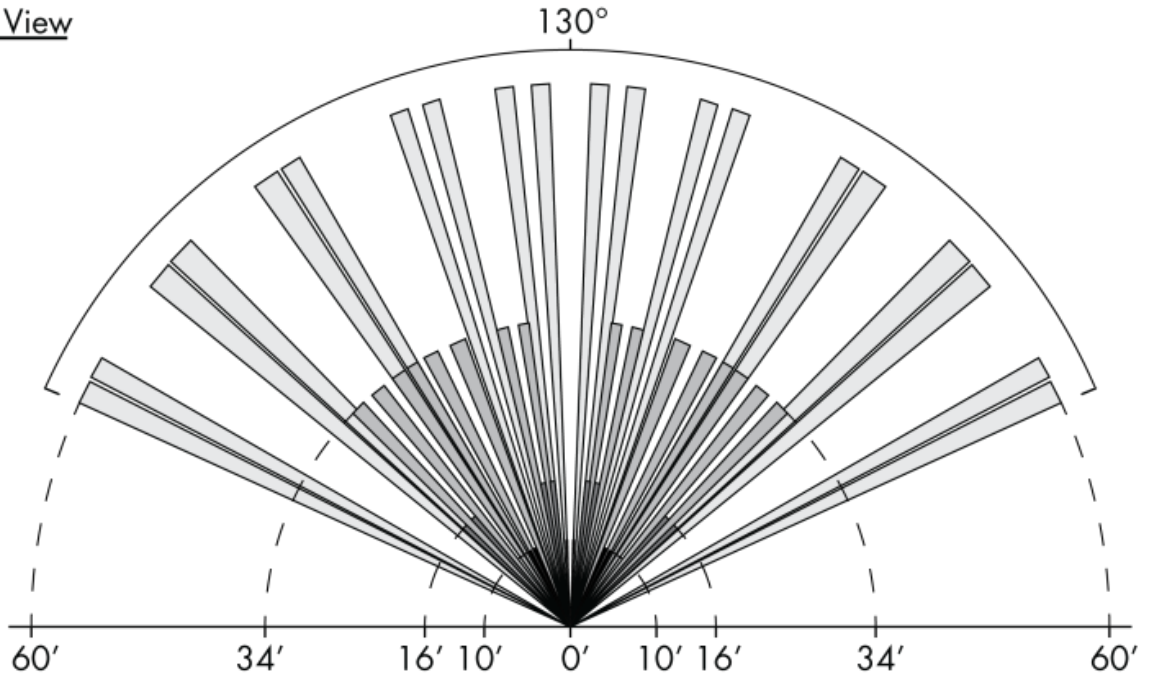
Side View



4.2. Large Area Lens

- Optimal usage is to detect large motions such as walking
- Coverage of 130°
- Designed for a mounting height of 7-10ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

Top View



Side View

