

VAC-U – MicroSet Ultrasonic Low Voltage Vacancy Ceiling Sensor

Catalog#	Prepared by
Project	Date
Comments	Type

Overview

The MicroSet Ultrasonic Low Voltage Vacancy Ceiling Sensor increases energy savings by requiring a Manual On input to turn ON the lighting.

Features

- MicroSet self-adjusting time delay and sensitivity
- Optional built-in light level sensor
- Optional BAS/HVAC isolated relay
- Products tested to NEMA WD 7 - 2011 Occupancy Motion Sensors Standard
- Requires Manual On for activation



Ultrasonic
Activated



MicroSet
Self-Adjusting

Specifications

Technology	Ultrasonic (US)
Power Requirements	Input 10-30 VDC from Greengate Switchpack or Greengate system Maximum current needed is 25mA per sensor Output Open collector output to switch up to ten Greengate Switchpacks BAS with an Isolated Form C Relay in (-R) model Isolated Form C Relay Ratings: 1A 30 VDC/VAC
Time Delays	Self-adjustable, 15 seconds/test (10 min. Auto), or Selectable 5, 15, 30 minutes, or Zero Time Delay
Coverage	500, 1000 and 2000 sq. ft. (56 ft. x 16 ft. corridor)
Light Level Sensing (-R Models)	0 to 300 foot-candles
Operating Environment	Temperature: 32°F - 104°F (0°C - 40°C) Relative humidity: 20% to 90%, non-condensing For indoor use only
Housing	Durable, injection molded housing. Polycarbonate resin complies with UL 94V-0
Size	1.42"H x 4.5"W (36.068mm x 114.3mm)
Mounting	Mounts directly to a ceiling tile, to a 4" square box and round mud ring or to a 4" octagon box
LED Indicators	Green LED for Ultrasonic detection
Standards	FCC Compliant cULus Listed RoHS Compliant



Description/Operation

The Ultrasonic Sensor uses the Doppler principle. It produces a low intensity, inaudible sound and detects changes in sound waves caused by motion, such as walking into the room, reaching for the telephone or turning in a chair. They are volumetric in nature and therefore not line-of-sight dependant. Since they fill the space with these sound waves, they are excellent in bathrooms with stalls, enclosed hallways, or other oddly shaped rooms. In addition, they are much more sensitive to smaller motions. The sensor includes self-adaptive technology that continuously self-adjusts sensitivity and Time Delay in real-time, maximizing the potential energy savings that are available in the particular application. The lights are turned ON by activating a momentary switch (model # GMDS-*) that is connected to the sensor. The MicroSet Ultrasonic Low Voltage Ceiling Sensor has an ambient light level sensor. When enabled, the Daylighting feature prevents lights from turning ON when the room is adequately illuminated by natural light.

Applications

- Conference Rooms
- Open Office Areas
- Restrooms (With Partitions)
- Restrooms (Non-Partitioned)
- Hallways
- Other Indoor Office Spaces

Wiring Diagrams

VAC-U-2000-R Model

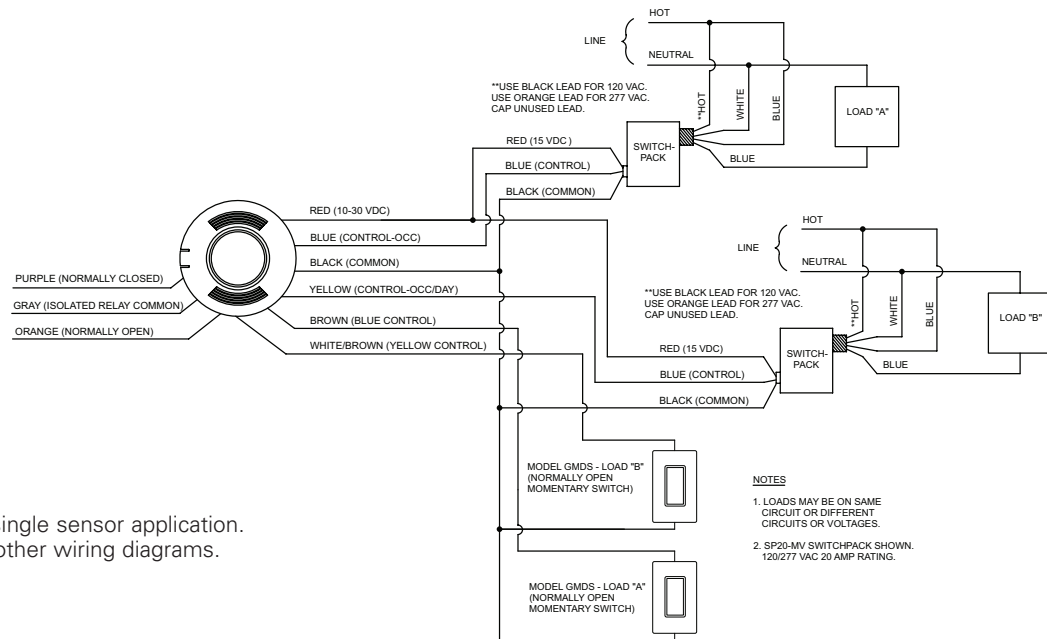
OAC AND VAC MANUAL MODE OPERATION:

1. SWITCHES ARE REQUIRED TO TURN CORRESPONDING LOADS ON.
2. LOADS TURN OFF WHEN SENSOR TIMES OUT OR WITH SWITCHES.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, SWITCHPACK CONNECTED TO YELLOW LEAD WILL NOT TURN LOAD ON.

OAC AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, BOTH LOADS TURN ON.
2. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, SWITCHPACK CONNECTED TO YELLOW LEAD WILL NOT TURN LOAD ON.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NONSHIELDED



*Wiring diagram for single sensor application.
Visit our website for other wiring diagrams.

Coverage

VAC-U-0501-R

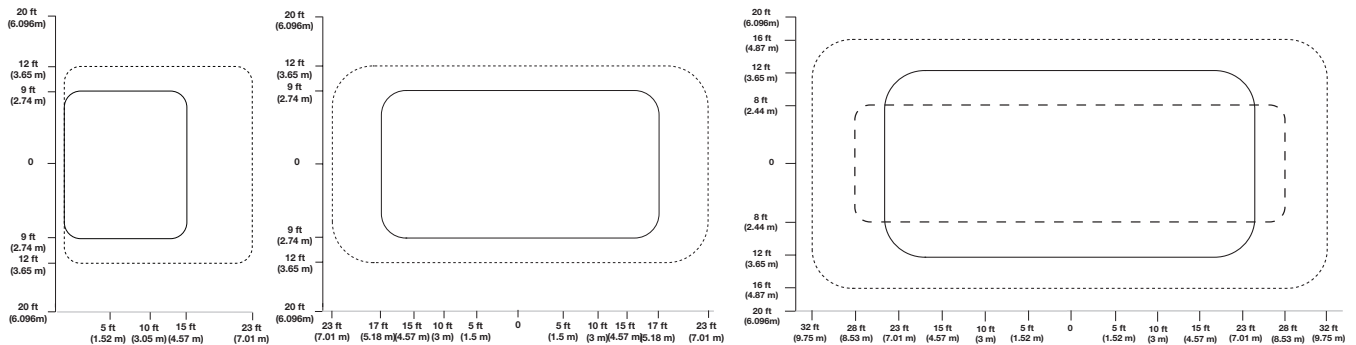
500 sq. ft.

VAC-U-1000-R

1,000 sq. ft.

VAC-U-2000-R

2,000 sq. ft.



Maximum coverage area may vary somewhat according to room shape and the presence of obstacles.

Minor Motion, Ultrasonic

Major Motion, Ultrasonic

Corridor Coverage

OAC-U-2000, OAC-U-2000-R models only

Recommended Mounting Height 8 to 12 feet

Controls

DIP Switch Legend

DIP Switch	Time Delay		Not Used		Not Used	Not Used	LEDs	Override	Sweep	Full/Half Logic	HVAC/Tracking	Zero Time Delay
	1	2	3	4	5	6	7	8	9	10	11	12
Auto*	▼	▼					Enable ▼	Disable ▼	Disable ▼	Full ▼	Disable ▼	Disable ▼
5 Minutes	▼	▲					Disable ▲	Enable ▲	Enable ▲	Half ▲	Enable ▲	Enable ▲
15 Minutes	▲	▼										
30 Minutes	▲	▲										

*Self-Adjusts to 10 min. user mode

Daylight Sensor Adjustment Ultrasonic Sensitivity Adjustment

Default =

Ordering

Catalog #	Recommended Room Size	Field of View	Features
VAC-U-2000-R	2,000 sq. ft. (56 ft. x 16 ft. corridor)	Two Way (360°)	w/ BAS Relay & Daylight Sensor
VAC-U-1000-R	1,000 sq. ft.	Two Way (360°)	w/ BAS Relay & Daylight Sensor
VAC-U-0501-R	500 sq. ft.	One Way (180°)	w/ BAS Relay & Daylight Sensor

Accessory Components

Suggested Low Voltage Manual ON Switch(es)
GMDS-W