

### Installation Instructions

#### GENERAL

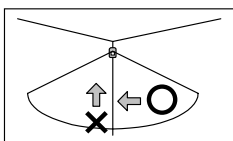
Thank you for choosing Sunne Controls' Hospitality Energy Management (HEM) system. This system is an occupancy activated, automatic control for hotel guestroom HVAC systems. With this system in control, guestroom HVAC energy costs are significantly reduced.

The SK200-002 system utilizes occupancy sensing technology and sophisticated logic control software to verify the occupancy status of guestrooms. When a guestroom is physically occupied, the system will allow the occupant to operate the HVAC system according to the guest's preference. When vacant, the SK200-002 system will automatically shut off unnecessary HVAC operation to reduce energy consumption.

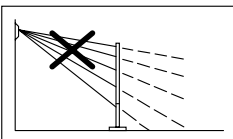
To ensure optimum performance, please read the following instructions before installing.

**CAUTION:** HVAC units may contain exposed AC line voltage. Make sure that power to the unit is turned OFF.

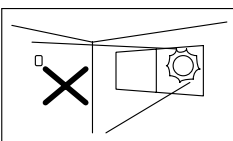
#### INSTALLATION HINTS



PIR sensor is more sensitive to the motion "across" the detection zones than "toward" the sensor.



Ensure the detection area does not have any solid obstruction (plants, large furniture, curtains).



Do not install where the sensor will face to direct sunlight or strong air flow.

#### SYSTEM COMPONENTS

##### SD200-002 Master Sensor

The SD200-002 is the master sensor of the SK200-002 system. It should be wall or ceiling mounted, preferably in a corner, to detect and verify room occupancy.



##### SF200-001 Power Pack

The SF200-001 is a line voltage to 24VDC switching power supply combined with a SPDT relay, inside a plastic housing. It provides 24VDC power for system operation and also switches power to the HVAC unit.

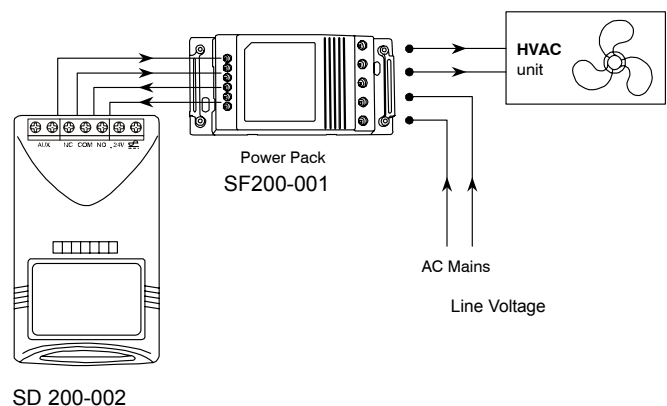


##### SE200-001 Door Switch

The SE200-001 is an optional door switch to be recess mounted in the guestrooms entry door frame.



#### SYSTEM CONFIGURATION



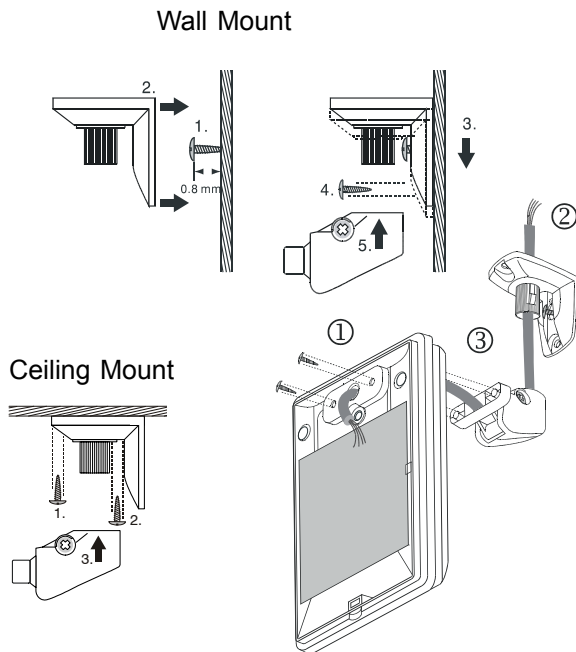
# INSTALLATION

## Mount the sensor with bracket

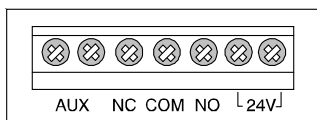
1. Mount the base of mounting bracket on the selected position as the following drawings show.

2. Lead the cable through the central tunnel of the mounting bracket.

3. Loosen the locking bolt and remove the front cover. Lead the cable into the case and attach the mounting bracket to the bottom of the sensor.



# WIRING INSTRUCTIONS



To ensure optimum performance of the system, all devices must be connected correctly. Connect the wires between the sensor and power pack as follows:

## SENSOR

**AUX** This pair of terminals are for connecting with the optional door/window sensor (N.C. type). **If door/window sensor is connected, the jumper wire between aux. terminals should be removed.**

**Note:** When door/window is connected, the system will shut off the HVAC operation if the door/window is open longer than 5 minutes.

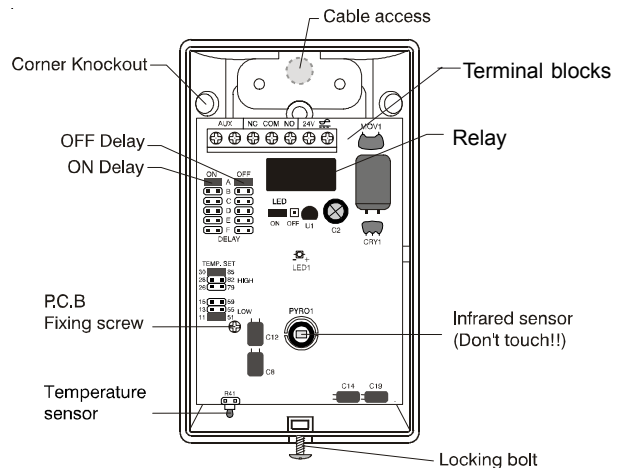
**NC** This terminal forms Normally Closed contact output with **COM**. No connection is needed for SK200-002 system.

**COM** Common pole of relay output. Connect this with one N.O. dry contact control terminal of SF200-001.

**NO** This terminal forms Normally Open contact output with **COM**. Connect this with the other dry contact input terminal of SF200-001.

**24V** Connect these two terminals with the 24V power supply.

# DESCRIPTIONS



# SETTINGS

## 1. High/Low Temperature Setbacks

The SD200-002 provides high/low temperature setbacks to prevent room temperature from getting too high or low while vacant. Setback is selectable. To disable the setback, remove the jumper.

## 2. LED on/off setting

This jumper enables/disables the LED indicator light of the SD200-002. Removing the jumper disables the LED.

## 3. ON delay setting

ON-delay is the delay time between the first motion detection during standby mode, and activation of the HVAC unit. If immediate activation is desired, set the ON-delay at "A" position.

## 4. OFF delay setting

OFF delay is the amount of time between the last detected motion and shut off of the HVAC unit. Longer delay times (20 to 30 minutes) are recommended for typical hotel guestroom applications.

# SYSTEM TEST

It is important to test system operation after installation is completed. Before testing, ensure that all wires are correctly and properly connected.

1. Apply power to the system. The LED of the SF200-001 power pack should be on, indicating normal operation.
2. The LED of the SD200-002 will blink (long-short) during a 90 second warm up period.
3. Walk in front of the sensor at a normal pace. The LED will light when it detects motion. Adjust the sensor direction until it can detect motion of a person lying on the guestroom bed.
4. Once the system test is completed, remove the jumper of LED ON/OFF switch of SD200-002 to disable the LED indication.

*Note: If any delay or temperature setting jumper is not properly placed, the LED will blink.*

# SYSTEM OPERATION

The SK200-002 System operates in the following modes:

## A. Standby Mode

When the room is vacant, the system will enter into “standby” mode. The HVAC unit will not operate under this mode.

## B. ON-delay mode

Once the sensor detects the motion during standby mode, the system will enter into “ON-delay” mode. This delay allows the system to verify the occupancy status before activating the HVAC. If ON-delay is not needed, place the jumper at “A” position to disable.

## C. 1-minute waiting

After the ON-delay expires, the system will enter into an 1-minute waiting period to wait for further detection. If no detection within 1 minute, the system will return to “standby” mode. If sensor detects the motion, the system will enter into “occupied” mode and the OFF-delay starts.

*Note: If ON-delay is disabled, the system will immediately enter into “occupied” mode when sensor detects the first motion.*

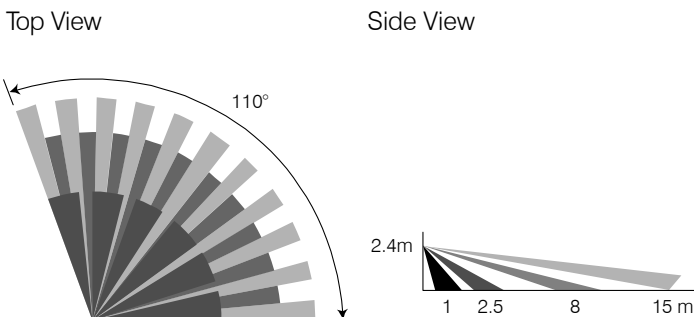
## D. OFF-delay mode

OFF-delay is the time that HVAC remains operating. During this period, any further motion detection will reset the timer.

## E. Automatic temperature control mode

During standby mode, the temperature sensor built-in the SD200-002 will measure room temperature. When room temperature exceeds the setbacks, the HVAC device will be automatically activated to maintain the room temperature within the setback range.

# DETECTION PATTERN



# SPECIFICATIONS

## SD200-002 Master Sensor

Power supply.....	24 ± 2 VAC/DC
Current drain.....	Standby: 7, Operating: 23 mA
Relay output.....	Form C (NC-COM-NO)
Max. switching current.....	NO: 5A, NC: 3A, resistive load
High temperature setback.....	26/28/30°C (79/82/85°F) programmable
Low temperature setback.....	11/13/15°C (51/55/59°F) programmable
Detection coverage.....	110° wide, 15m (50ft) long @25°C(77°F)
Detection LED.....	Red, can be disabled.
Warm-up period.....	Approximately 90 seconds
ON-delay.....	0 (disabled)/10 sec./30sec./ 1 min./5 min./10 min.
OFF-delay.....	10 sec./1 min./5 min./ 10 min./20 min./30 min.
Housing material.....	ABS
Operating temperature.....	-10°C ~ 38°C (14°F ~ 100°F)
Operating humidity.....	Max. 95% RH non-condensated
Dimensions.....	112 x 66 x 45 mm (4.4 x 2.6 x 1.8 inch)

## SF200-001 Power Pack

Power supply.....	110 ~ 240 VAC
Power output.....	24 VDC, 200 mA max.
HVAC Relay output.....	Form C
Max. switching current.....	10A, resistive load
Max. switching voltage.....	250V AC
Housing material.....	ABS, flame-proof
Operating temperature.....	-10°C ~ 60°C (14°F ~ 140°F)
Operating humidity.....	Max. 95% RH non-condensated
Dimensions.....	110 x 52.5 x 33 mm (4.3 x 2.1 x 1.3 inch)

**WARNING**

- READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THIS DEVICE.
- Failure to observe safety information and comply with instructions could result in PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.
- To avoid electrical shock or damage to equipment, disconnect power before installing or servicing.
- To avoid potential fire and/ or explosion do not use in potentially flammable or explosive atmospheres.
- Retain these instructions for future reference. This product, when installed, will be part of an engineered system whose specifications and performance characteristics are not designed or controlled by Sunne Controls. You must review your application and national and local codes to assure that your installation will be functional and safe.

**CAUTION**

Use Copper wire only, insulate or wire nut all un-used leads.