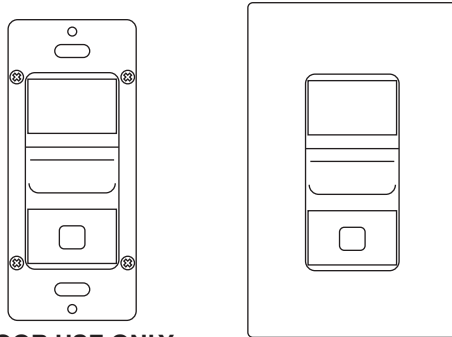


# WALLSENZR

## BDS-700 Series

Low Voltage Dual-Tech Wall Switch Sensor

### INSTALLATION INSTRUCTIONS



INDOOR USE ONLY

Utilisation à l'interieur Uniquement

### ⚠ WARNING & CAUTION

- Turn power OFF at circuit breaker before installing Power Pack or Sensors.
- Do NOT touch the square window of infrared sensor under the lens assembly.
- Do Not Install To and/or Cover a Junction Box Having Class 1, 3 or Power and Lighting Circuits.
- Class 2 Device Wiring Only – Do Not Reclassify and Install as Class 1, 3 or Power and Lighting Wiring.

### ⚠ AVERTISSEMENT & PRUDENCE

- Coupez l'alimentation au disjoncteur avant d'installer Power Pack ou capteurs.
- Ne PAS toucher la fenêtre carrée de capteur infrarouge sous l'ensemble de l'objectif.
- Ne pas installer ou couvrir une boîte de jonction ayant les classes 1 et 3 ou circuits de puissance et d'éclairage.
- Classe 2 Câblage de périphériques Seulement - Ne PAS reclasser et installer Classe 1, 3 ou alimentation et circuits d'éclairage.

#### FCC NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference,  
(2) This device must accept any interference received, including interference that may cause undesired operation.

Install the sensor at least 1ft. away from any occupant.

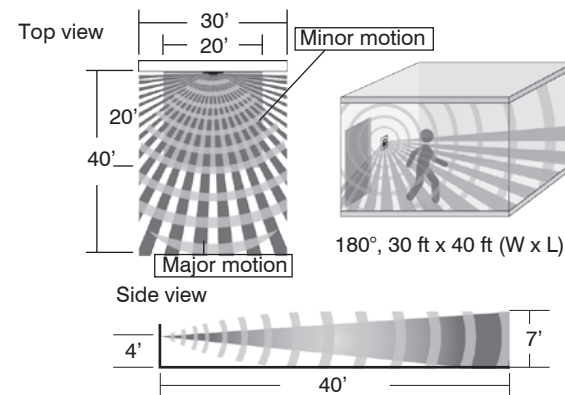
### OVERVIEW

The BDS-700 is a low voltage dual-tech wall switch sensor in the IR-TEC's WALLSENZR family designed to fit in a NEMA standard wall box. This state-of-the-art wall switch sensor combines digital Passive Infrared (PIR) and High Frequency Doppler (HFD) sensing technologies into an aesthetically pleasing housing to provide superior occupancy/vacancy sensing control for various applications. HFD is an advanced sensing technology which utilizes super high frequency radio waves to detect the object movement, similar to ultrasonic but without grid openings on the front.

The sensor output will be activated to turn ON the load as programmed via the connected power pack or BMS when it detects the presence of an occupant, and will turn OFF automatically if no motion is detected before the delay time elapses. To meet compliance of specific energy code, such as CA Title 24, the BDS-700 series can be programmed as a Vacancy Sensor. In vacancy sensing mode, the sensor output will only be activated by pressing the push-button manually and will turn OFF the load automatically per the sensor delay time. The BDS-700 allows for the push-button operation to be programmed with different manual control modes.

The sensor comes with an ambient light sensor (ALS) to inhibit the lighting if ambient light level is higher than required. The Accu-Set digital potentiometers make delay time (TIME) and ambient light level (LUX) settings fast, easy and accurate. Isolated dry contact output allows the BDS-700 series to control the load with IR-TEC Power Packs or integrate with BMS/BAS.

### DETECTION COVERAGE



### INSTALLATION NOTES

1. The PIR sensor is more sensitive to the movements "crossing" the detection zones than "toward" or "away" it. To obtain better sensitivity, ensure the sensor to have clear field of view for the occupant's motion within the desired detection coverage.
2. In general, the HFD sensor has better sensitivity to the minor motions than the PIR sensor. The HFD sensor could possibly detect the movements out of sight through non-metallic partition or enclosure. If so, reduce the HFD sensitivity to prevent unwanted triggering.
3. The sensor should be mounted within the specified mounting height to achieve optimal performance.
4. Do NOT mount the sensor directly above or nearby a heat source, or where unintended motion (e.g. hallway traffic) will be "seen" by the sensor.

### SPECIFICATIONS

Power input	12~24VDC ± 5%
Current drain	10/30 mA, 24VDC @vacant/occupied
Sensing technology	Digital PIR & High Frequency Doppler
Control output	Form A relay (NO), isolated dry contact
Contact rating	Max. 2A @30VDC, isolated
Detectable speed	1~10 ft./sec. (0.3~3 m/sec)
Mounting height	3 ~ 5 ft. (90~150 cm) above the floor
Detection coverage	Major motion - 30 ft x 40 ft (W x L) @4 ft high Minor motion - 20 ft x 20 ft (W x L) @4 ft high
Ambient light level	7 levels, from dark to 24 Hr. (ALS disabled)
Delay time setting	T/1'/3'/5'/10'/20'/30', T=10 sec. for testing
Op. humidity	Max. 95% RH, non-condensate
Op. temperature	-40°F ~ 131°F (-40°C ~ 55°C)
Dimensions	4.13"H x 1.77"W x 1.65"D (w/mounting plate)



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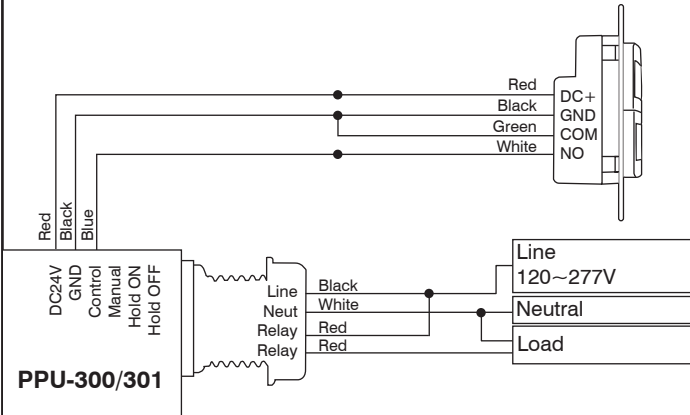
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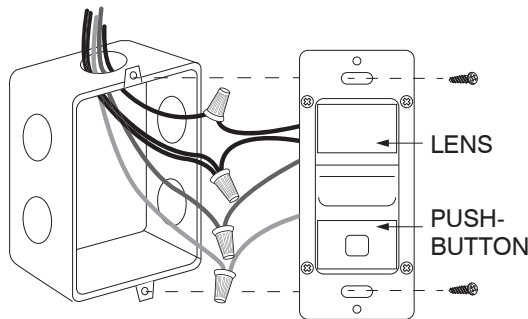
## WIRING DIAGRAM

### • Sensor control ON/OFF (PPU-300/301)



The sensor may be available with other control options, consult a qualified electrician or contact [info@irtec.com](mailto:info@irtec.com) for assistance.

## INSTALLATION



1. Install the power pack and connect the load according to its instructions.
2. Connect the low voltage wires of power pack with the respective wires of the sensor according to the diagram of desired control.
3. Turn ON the line voltage power for the power pack.
4. Conduct sensor operation test.
5. Attach the wallplate cover after testing and setting completed.

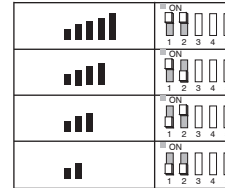
## OPERATION

The BDS-700 series low voltage dual-tech wall switch sensor employs passive infrared (PIR) and High Frequency Doppler (HFD) sensing technologies to monitor the occupancy status within its coverage, and provide an isolated dry contact output for the connected power pack to control the operation of connected load. The BDS-700S also features ambient light sensor to inhibit unnecessary lighting when ambient light is higher than the level set.

### SETTING - DIP Switch

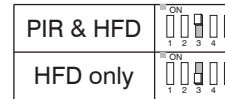
#### HFD Sensitivity - SW1 & 2

The combinations of DIP switch 1 and 2 determines the sensitivity of HFD sensor.



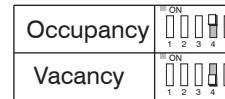
#### Operating Sensor - SW3

DIP switch 3 changes the operating sensor. If necessary, the BDS-700 can be programmed as a single HFD wall switch sensor.



#### Occupancy/Vacancy Sensor Selection - SW4

Occupancy sensor switches the light ON automatically when PIR sensor detects the presence of an occupant. The sensor will switch the light OFF automatically if no occupant activity has been detected by either PIR or HFD sensor before the time delay elapses.

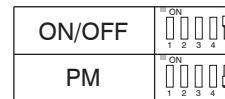


Vacancy sensor requires the user to manually press the push-button to turn ON the light. The sensor will switch the light OFF automatically if no occupant activity has been detected by either PIR or HFD sensor before the time delay elapses.

**NOTE:** The sensor will automatically turn ON the light if it detects occupant activity within 30 seconds after time delay elapsed.

#### Push-button Operation Control - SW5

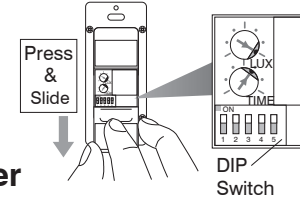
Pressing the push-button during occupied state will turn OFF the load of respective pole and hold OFF until the push-button is pressed again.



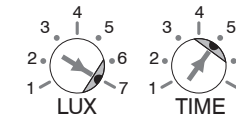
In Presentation Mode (PM), pressing the push-button will turn OFF the lights immediately, and the lights will remain OFF even if motion is detected. Pressing the push-button again will turn the light ON and the sensor will operate per its settings. If the time delay expires and no occupant activity has been detected, the sensor will return to its normal operation. The lights will turn ON with the next motion detected.

The time delay (TIME) and ambient light level (LUX) settings can be changed by rotating the respective Accu-Set potentiometer at different positions. Via DIP switch setting, the BDS-700S can be programmed to adjust the HFD sensitivity, operate as a single HFD wall switch sensor, control the load as an Occupancy Sensor or Vacancy Sensor, and set the push-button operation to turn ON/OFF manually or in Presentation Mode (PM). To program the sensor operation mode or change the settings, press the push-button cover and slide it down as shown.

To program the sensor operation mode or change the settings, press the push-button cover and slide it down as shown.



### SETTING - Potentiometer



POS.	1	2	3	4	5	6	7
TIME T	1'	3'	5'	10'	20'	30'	
LUX	10	20	35	50	100	150	24H

Factory Set

#### TIME - Delay time

TIME setting determines the delay time that the sensor will hold the load ON after the last motion detected. Factory setting is 10 minutes, and it can be changed by pointing the arrowhead of potentiometer to the specific position.

#### LUX - Ambient light level

LUX setting determines the threshold of ambient light level that the sensor will inhibit switching ON the load. The factory setting is ALS disabled (24 Hr) for testing convenience, and it can be changed by pointing the arrowhead of potentiometer to the specific position.

## TESTING

1. Restore the line power for sensor operation and wait for the sensor to warm-up (GREEN LED will blink during the warm-up period).
2. Move within the desired range and observe the sensor detection. BLUE blink indicates the PIR sensor detected, and GREEN blink indicates the HFD sensor detected. Move outside of the desired range and observe if the HFD sensor can detect. If GREEN LED blinks, reducing the HFD sensitivity accordingly.
3. Replace the wall plate cover after sensor testing and setting completed.

**NOTE:** The connected load will be switched ON as delay time set (factory default 10 minutes) after the power applied. The delay time can be set to the shortest (10 seconds) for test convenience. **Ensure to set the TIME back to the desired delay for optimum operation after test.**