

# OS-551DT

## Low Voltage Dual-Tech Occupancy Sensor



PIR+HFD

### OVERVIEW

The OS-551DT is a low voltage dual technology occupancy sensor designed to signal the occupancy status for area lighting, or HVAC control, for energy efficient building management. The sensor combines a cutting edge Passive Infrared (PIR) sensor, a state-of-the-art High Frequency Doppler (HFD) sensor, and advanced signal processing firmware into one unit to perform superior occupancy sensing capability.

The OS-551DT is ideal for the areas where motion may not be easily detectable by a single technology occupancy sensor. When sensor verifies the presence of an occupant, a form C dry contact output will be activated as long as the motion is detected by either PIR or HFD sensor. If the sensor is applied to control the operation of HVAC systems, an ON-delay can be enabled to prohibit short-cycle restart or unwanted load activation.

The OS-551DT is operated by 24V low voltage power supplied from an IR-TEC power pack, or building management system for occupancy sensing based lighting and/or HVAC control. The sensor also features an ECG analog output for Continuous Dimming of your lighting via a 0-10V control. A multi-directional bracket allows the sensor to be easily mounted on the wall, corner or ceiling with horizontal/vertical adjustment to achieve optimum coverage. The sensor can also connect with external momentary contact signal for manual override control. Numerous control functions and operation modes can be programmed via DIP switch settings to meet specific requirements.

### FEATURES

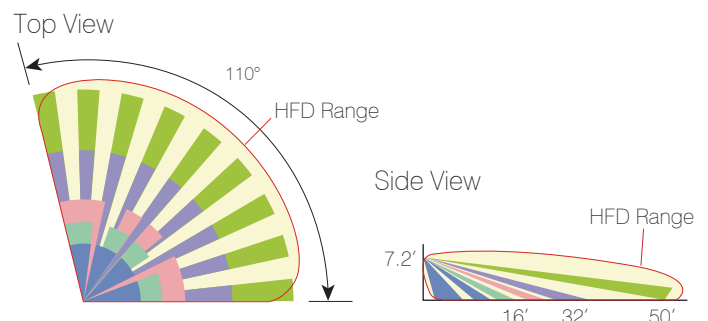
- ECG for 0-10V Continuous Dimming Control
- Ambient light levels selectable to inhibit relay
- HFD sensitivity adjustable for optimum range
- 22~ 26VAC/DC low voltage power operation
- NC-COM-NO form C dry contact relay output
- Multi-directional mounting bracket supplied
- Selectable ON-delay to filter walk-by traffics
- 3 LED's indicate occupancy sensing activities
- SmartDelay enables smart delay time setting
- Walk-through mode available for more saving
- Audible Delay-End Warning enabled/disabled
- Manual override control signal input available
- 5-minute TEST mode with shortest OFF-delay

### APPLICATION

- Light Control with  
0-10V Continuous Dimming
- HVAC Control
- Building Management

The OS-551DT can be used to control area lighting, or HVAC systems, with an IR-TEC power pack or in conjunction with a building management system. Various control modes can be achieved by different wiring connections. Consult with an IR-TEC team member if a more complex wiring diagram is required.

### DETECTION PATTERN



### SENSOR OPERATION

The OS-551DT combines a PIR and a HFD sensor into one unit. The sensor is operated by 24V low voltage power. When PIR sensor detects the presence of occupant within its coverage, the sensor will activate a form C dry contact for a period of OFF-delay time as programmed. The delay timer will be reset if any motion is detected by either PIR or HFD sensor before delay time elapsed. An ON-delay can be enabled to prohibit short-cycle restart or unwanted load activation if the sensor is used to control HVAC operation. Both ON and OFF delays can be easily set via two rotary DIP switches on board. A potentiometer allows the HFD sensitivity adjustment to achieve optimal range. The sensor output can be set to inhibit when ambient light level is higher than the threshold programmed.

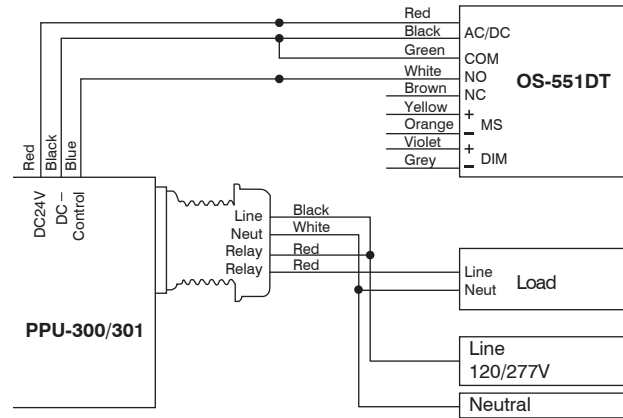
This sensor offers numerous control options which can be enabled, or disabled via a 6-pole DIP switch on board. 3 LED's are available to indicate the sensing status which can be disabled if necessary. A built-in buzzer can be enabled to provide audible Delay-End Warning (DEW) at the end of OFF-delay. The SmartDelay can be enabled to automatically adjust the OFF-delay based on the duration of previous occupancies. Walk-Through mode can be enabled to turn the light OFF 3 minutes after the area is initially occupied but with no motion detected in the next 30 seconds. The FORCE-OFF delay can also be applied if HFD sensor may detect the out-of-range motions thus result in unwanted OFF-delay extensions. The sensitivity of PIR sensor can be reduced for harsh environment.

### SPECIFICATIONS

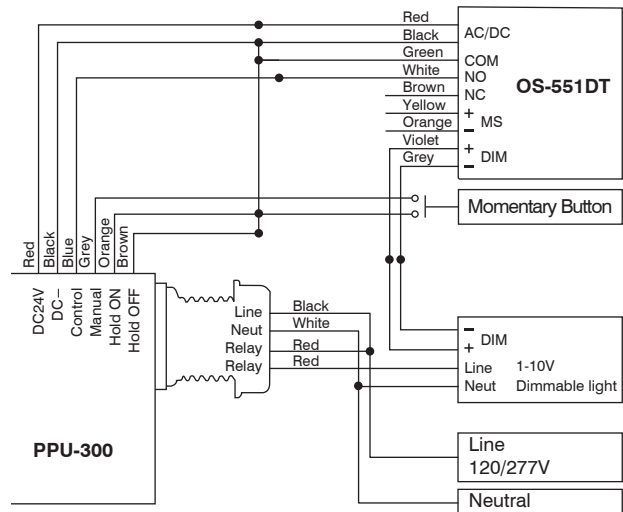
Power supply	22~26 VAC/DC
Current drain	24/50 mA @ 24 VDC, vacant/occupied
Output contact	Form C, max. 5A resistive load
Infrared sensor	Dual element pyroelectric sensor
HFD sensor	X-band DRO type, patch antenna
Detectable speed	0.33 ~ 10 ft/sec. (0.1 ~ 3 m/sec.)
Mounting height	6 ~ 12 ft (1.8 ~ 3.6 m)
Detection range	110°, 50 ft @ 77°F (25°C)
ON-delay setting	0(disabled)/5"/10"/20"/30"/1'/3'/5'
OFF-delay setting	10"/1'/3'/5'/10'/20'/30'/60'
ALS level setting	4-level, 2~2,000 lux
Manual override	Momentary contact
FORCE-OFF delay	5 times of OFF-delay set, if enabled
Walk-thru mode	3 min. if no motion within 30 sec.
Op. humidity	Max. 95% RH
Op. temperature	-14°F ~ 122°F (-10°C ~ 50°C)
Dimensions	4.4"x2.6"x1.8" (112 x 66 x 45 mm)

### WIRING DIAGRAM

#### A. Auto-ON/Auto-OFF



#### B. Manual-ON/Auto-OFF and Auto-DIM with PPU-300



### DIMENSIONS

