

R1.0 Large Restroom: occupancy sensing

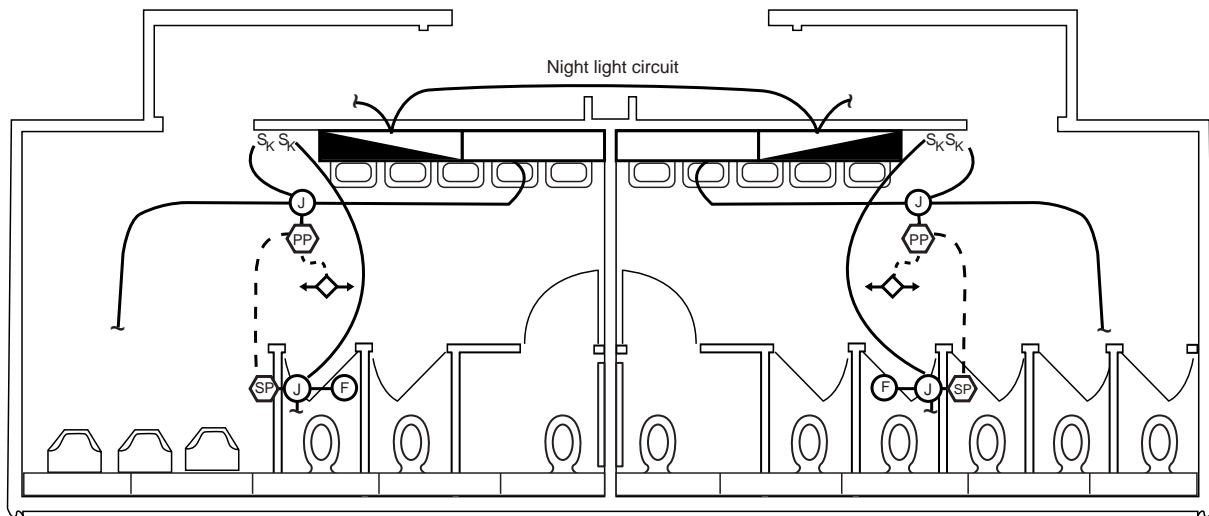
Control Needs	Solution	Application Description
Automatically turn lights ON/OFF based on occupancy	Ceiling mounted ultrasonic occupancy sensor (WT-1105)	Space use: Restroom Dimensions: 12' x 20' Ceiling height: 10'
Manual override lighting and fan OFF	Keyed wall switches	Windows: None Window blinds: None Skylights: None
Control 120 volt exhaust fan together with lighting	Slave pack for controlling fan using occupancy sensor	
Night lights on all the time	Night lights not controlled	

Lighting

Recessed 1 x 4 luminaires using two T8 lamps and a 277 volt 2-lamp electronic ballast

Design Considerations

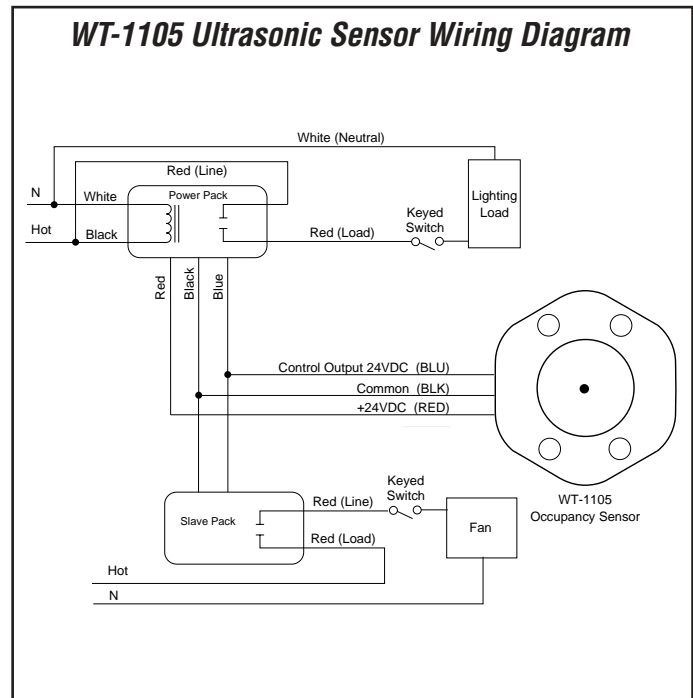
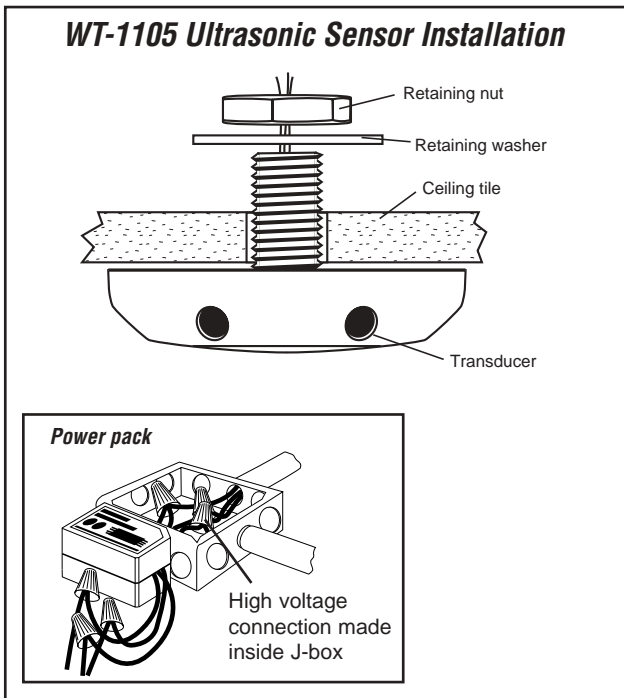
A WT-1105 ultrasonic occupancy sensor is ceiling-mounted in the center of each restroom, turning lighting on when the space is occupied and off when vacant. The choice of ultrasonic sensor was made because it can detect occupancy around stall partitions and other obstacles. The sensor is powered by a power pack that is located next to the junction box. A slave pack is used for controlling the exhaust fan with the same occupancy sensor. This is necessary since the fan is a different voltage than the lighting load. Keyed switches allow the lights to be overridden off when necessary. Night lighting is not controlled and remains on at all times.



LEGEND	
WT-1105 Ultrasonic occupancy sensor	120 volt exhaust fan
B277E-P power pack	Junction box
S_K Keyed wall switch	Night light fixture
S120/277/347-P slave pack	- - - Low voltage wiring
	— Line voltage wiring

R1.0 Installation Notes

1. Mount power and slave packs next to junction box above acoustical tile ceiling. This minimizes wiring and simplifies installation. For drywall ceilings, mount power and slave packs above access panel.
2. Orient WT-1105 in center of the room to have view of entire space and over stalls.
3. Mount the WT-1105 sensor on a rigid, vibration-free surface, at least six inches from the power pack, four feet from supply air ducts and six feet from horizontal discharge ducts.
4. WT-1105 sensor is shipped with a factory preset time delay of 16 minutes and sensitivity set to 50%, both recommended for restrooms. Refer to installation instructions if adjustments are necessary.
5. Use a minimum of 22 gauge wire for low voltage wiring. See Technical Bulletin TB-124 on Voltage Loss at www.wattstopper.com.
6. Confirm night light/egress lighting requirement with local code officials.
7. Use stainless steel wall switch plates to facilitate cleaning and minimize damage from impact.



Equipment Schedule (per restroom)

Catalog No.	Qty	Description
WT-1105	1	Ultrasonic occupancy sensor, 1000 sq ft, 360° coverage
B277E-P	1	Power pack, 277 VAC, 60 Hz
S120/277/347E-P	1	Slave pack, 120/277/347 VAC
AC1-L	2	Keyed wall switch, Pass & Seymour/legrand, single-pole
SL2	1	Wall plate, Pass & Seymour/legrand, type 430 stainless steel finish, two-gang