National Grid Small Business Program Rebate Manual

MUNRO DISTRIBUTING
Clean Energy & Electrical Solutions

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Rebate Manual

Munro Distributing has prepared this manual to aid you and your clients in taking advantage of available rebate programs offered by National Grid.

The enclosed product guide includes fixtures that apply to local prescriptive utility rebate programs. Use of products indicated does not guarantee a rebate. Please contact your local utility and/or Munro Distributing for any questions or concerns pertaining to your project. In addition to those listed, other products may be eligible for rebates. Please contact your Munro Distributing representative for assistance.

Please visit our website for updated Energy Services information regarding new products, links to informative sites and beneficial analysis tools. Please visit us at www.munroelectric.com.

Munro Distributing – 800.777.0172

6/27/10

Lighting Controls

Lighting Controls

Description	Manufacturer	Model	Warranty (years)	Page Number
CEILING MNT, LOW VOLT ULTRA SONIC UP TO 500 SQFT	Wattstopper	W500A	5	114- 115
CEILING MNT, LOW VOLT ULTRA SONIC >500 SQFT	Wattstopper	W1000A	5	114- 115
CEILING MNT, LOW VOLT PASSIVE INFRARED UP TO 500 SQFT	Sensor Switch	CM 9	5	116- 117
CEILING MNT, LOW VOLT PASSIVE INFRARED >500 SQFT	Sensor Switch	CM 10	5	118- 119
CEILING MNT, LOW VOLT DUAL TECH UP TO 500 SQFT	Sensor Switch	CM PDT 9	5	120- 121
CEILING MNT, LOW VOLT DUAL TECH >500 SQFT	Sensor Switch	CM PDT 10	5	122- 123
POWER PACK FOR LOW VOLT SENSORS, UNV VOLTAGE	Sensor Switch/Wattstopper	MP20/BZ50	5	124- 127
SWITCH MNT, PASSIVE INFRARED	Sensor Switch	WSD WH	5	128- 129
SWITCH MNT, PASSIVE INFRARED 2 POLE	Sensor Switch	WSD 2P WH	5	130- 131
SWITCH MNT, DUAL TECHNOLOGY	Sensor Switch	WSD PDT WH	5	132- 133
FIXTURE MNT, HIF - LINE VOLTAGE	Sensor Switch	CMRB 6	5	134- 135
FIXTURE MNT, FLOUR. - LINE VOLTAGE	Sensor Switch	CMRB 6	5	134- 135
PHOTO CELL	Intermatic	K4221	5	136
TIME CLOCK	Intermatic	T101	5	137

W Series Ultrasonic Ceiling Sensors

Turns lights on and off based on occupancy to reduce energy costs

Hallway and 500, 1000 and 2000 square foot coverage available

Ideal for open office areas, conference rooms and restrooms

Adjustable time delay from 15 seconds to 15 minutes

Advanced Signal Processing (ASP) circuitry automatically adjusts detection threshold

Automatic or manual-on operation when used with a BZ-150 Power Pack

PROJECT

LOCATION/TYPE

Product Overview

Description

WattStopper's W Series Ultrasonic Ceiling Sensors are versatile motion detectors that control lighting in a wide variety of applications. W Series Sensors can be used individually or as part of an integrated system of WattStopper lighting control products.

Operation

The 24 VDC W Series Sensors utilize advanced omni-directional, ultrasonic technology to sense occupancy. When movement is detected in a controlled area, the W Series Sensors will switch lights on via low-voltage wiring through to a WattStopper power or auxiliary pack. Once the area is vacated and the user-adjustable time delay (15 seconds to 15 minutes) has elapsed, lighting systems automatically switch off.

Manual-on Option

To comply with code or for additional control options, W Series Sensors can be used with a BZ-150 power pack for manual-on/auto-off control. If this option is selected, occupants utilize a low-voltage momentary wall switch to turn on lights. Lights automatically turn off after the area is vacated and the user-adjustable time delay has elapsed.

Applications

Ultrasonic sensors effectively control offices, restrooms, utility areas, open office spaces and warehouses. The W-500A is perfect for offices, conference rooms, restrooms and other areas up to 500 square feet. The W-1000A fits in larger spaces, such as storage areas. The W-2000A is ideal for open office areas or large warehouses and can control partitioned open office spaces when configured in highly versatile zone patterns. The W-2000H reliably covers hallways with walls.

Features

- ASP circuitry helps to eliminate false on
- Utilizes advanced omni-directional, ultrasonic technology for reliable occupancy detection
- Omni-directional transmission provides 360° of coverage
- Time delay adjustable from 15 seconds to 15 minutes

- 500, 1000, 2000-square foot and hallway coverage available to fit needs of specific applications
- Optional on override by installing the Override Pin provided with the sensor
- LED indicates occupancy detection
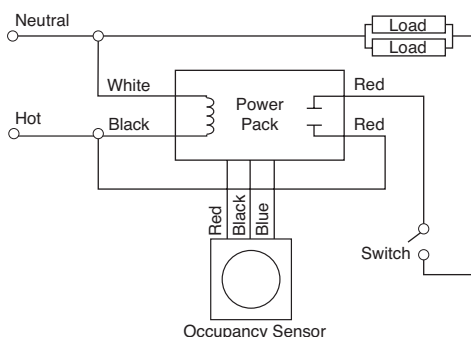- Qualifies for ARRA-funded public works projects
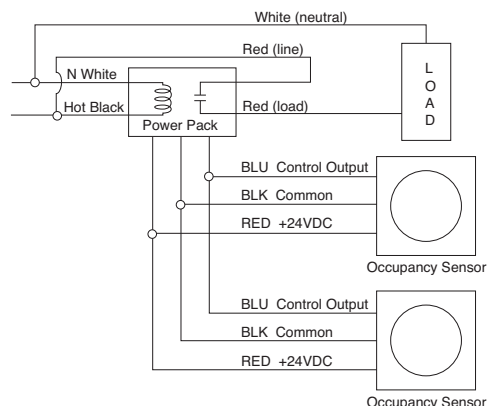
WattStopper®

Specifications

- Solid state, crystal-controlled (25 kHz ± 0.005%)
- Temperature and humidity-resistant 25 kHz receivers: W-500A contains one receiver, other models contain two receivers
- Adjustable time delay: 15 seconds to 15 minutes
- Mounting options: ceiling tile, 4" sq. junction box
- Max. units per power pack: B = seven; BZ = nine
- Dimensions: 4.5" x 4.5" x 1.25" (115mm x 115mm x 32mm) W x L x D
- UL listed
- Five year warranty
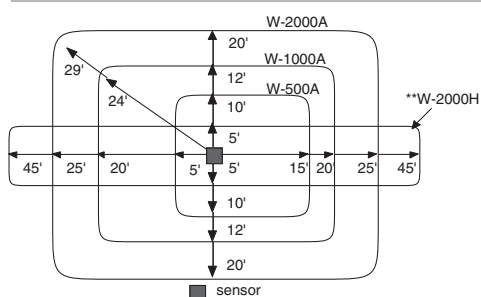
Wiring

Standard Wiring Diagram

Neutral
Load
Load
White
Red
Power Pack
Hot
Black
Red
Red
Black
Blue
Switch
Occupancy Sensor

Multiple Sensor Wiring Diagram

White (neutral)
Red (line)
N White
L O A D
Hot Black
Red (load)
Power Pack
BLU Control Output
BLK Common
RED +24VDC
Occupancy Sensor
BLU Control Output
BLK Common
RED +24VDC
Occupancy Sensor

Coverage, Installation & Placement

Coverage Pattern

W-2000A
20'
W-1000A
29'
12'
W-500A
24'
10'
**W-2000H
5'
45' 25' 20' 5' 5' 15' 20 25' 45'
10'
12'
20'
sensor
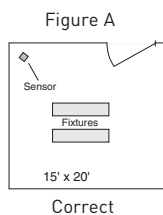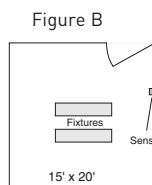
Coverage shown represent half-step walking motion. Actual coverage can vary for each application depending on the shape and the use of space and the obstacles present. Coverage may be reduced if product is mounted greater than 12 feet high.

The W-2000H drawing is not drawn to scale. Coverage is 10' x 90' in a hallway; enclosed spaces enhance coverage.

Installation

Time delay
Receiver
Sensitivity
Bypass
LED

Attach sensor to a vibration-free surface. Mount the sensors with the receivers facing the area of coverage. Note: Ultrasonic sensors should be placed 4' away from supply ducts, 6' from horizontal discharge ducts, and 6" from power packs.
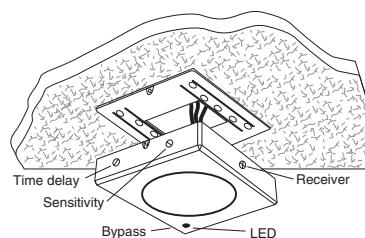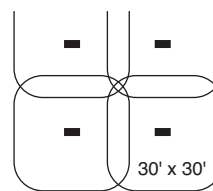
Enclosed Office Sensor Placement

Figure A
Figure B
For enclosed spaces, place sensors as in Figure A. Sensors placed as in Figure B may see out the door and cause false triggers.

Sensor
Fixtures
Fixtures
Sens
15' x 20'
15' x 20'
Correct
Incorrect

Open Office Sensor Placement

30' x 30'

A typical layout for an open office space would be to place W-2000A sensors so they control zones that overlap. For partitioned spaces, a typical zone is about 25' x 25' with an overlap on the coverage that senses motion up to 30' x 30'.

Ordering Information

Catalog No.	Voltage	Current	Coverage
W-500A W-500A-FTA W-500A-U	24 VDC	16 mA	360°; 500 ft^2 (46.5 m^2)
W-1000A W-1000A-FTA W-1000A-U	24 VDC	16 mA	360°; 1000 ft^2 (92.9 m^2)
W-2000A W-2000A-FTA W-2000A-U	24 VDC	16 mA	360°; 2000 ft^2 (185.8 m^2)
W-2000H W-2000H-FTA W-2000H-U	24 VDC	16 mA	360°; 90 linear ft (27.4 m)**

All units are white and use WattStopper power packs.
**Coverage for an enclosed hallway is 10' x 90' (see pattern above).

A Group brand | legrand
www.wattstopper.com | 8 0 0 . 8 7 9 . 8 5 8 5

sensor**switch** ®

CM 9

STANDARD RANGE 360º SENSOR
CEILING MOUNT • LOW VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
PIR Occupancy Detection
360º Coverage
Push-Button Programmable
Adjustable Time Delay
100 Hr Lamp Burn-in Timer
Green LED Indicator

PHYSICAL SPECS
SIZE 4.55" Dia. (11.56 cm)
1.55" Deep (3.94 cm)
WEIGHT 6 oz
MOUNTING
Ceiling Tile Surface
3.5" Octagon Box
Single Gang Handy Box
COLOR White

ELECTRICAL SPECS
OPERATING VOLTAGE
12-24 VAC/VDC
CURRENT DRAW
Standard, 4 mA
w/ R option, 16 mA
DIMMING LOAD
Sinks / Sources < 20mA;
~40 Ballasts @ .5mA each
RECOMMENDED POWER PACK
PP20

ENVIRONMENTAL SPECS
OPERATING TEMP
14º to 160º F (-10º to 71º C)
STORAGE TEMP
-14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

The **CM 9** Series occupancy sensor offers amazing performance and sensitivity to small motions for a standard range Passive Infrared (PIR) sensor. Ideal for small rooms with drop ceilings and areas without obstructions, the **CM 9** is a snap to install. Its light weight allows surface mounting to drop ceilings or a ceiling grid. The **CM 9** sensor can cover entire private offices or smaller rooms by itself, however it is also the ideal lead sensor for odd shaped rooms. For example, a **CM 9** in a restroom vestibule can communicate with a **CM PDT 9** Dual Technology sensor in a main stall area. Another application is a **CM 9** covering an entrance hall to a classroom and communicating with a **WV PDT 16** sensor covering the main room. In both cases the lights would be activated on by the **CM 9**. For mounting above 15 ft (4.57 m), see the **CM 6** Technical Data Sheet.

SENSOR OPERATION
The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12-24 VAC/VDC and typically operates with a **PP20** or **MP20** power pack, enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art design requires no field calibration or sensitivity adjustments.

OPTIONS

LOW VOLTAGE RELAY (R)
• Enables sensors to interface with other systems (e.g., BMS, lighting panels)
• Provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay
• Only one relay needed per zone
• Changes state when all connected sensors register unoccupied
• Relay requires sensor power to function

OCCUPANCY CONTROLLED DIMMING (D)
• Provides dimming output to control 0-10 VDC dimmable ballasts
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
• Adjustable max/min dim setting

PHOTOCELL (P)
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

PHOTOCELL W/ DIMMING (ADC)
• Photocell within sensor maintains total room light level by controlling levels of 0-10 VDC dimmable ballasts
• Photocell also has full on/off control during periods of occupancy
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant to moisture
• Operates down to -40º F/C

ORDERING INFO   CM 9 [RELAY] [DIMMING/PHOTOCELL] [TEMP/HUMIDITY]

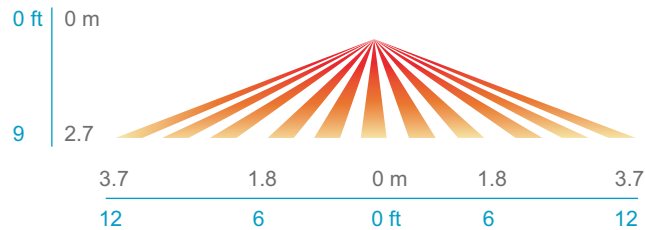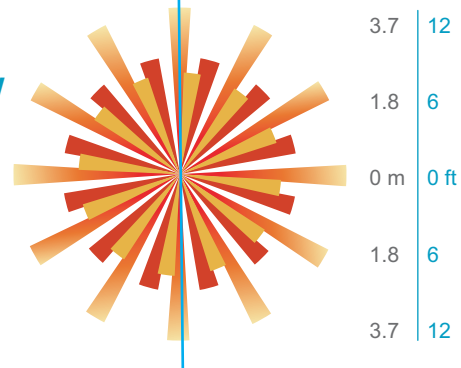| RELAY	DIMMING / PHOTOCELL *CHOOSE ONE ONLY*	TEMP/HUMIDITY
Blank = None	**Blank = None**	**Blank = Standard**
R = Low Voltage Relay	**D = Occupancy Controlled Dimming**	**LT = Low Temp**
	P = Photocell	
	ADC = Photocell w/ Dimming	

COVERAGE PATTERN

9 STANDARD RANGE 360º LENS

- Best choice for small motion (e.g. hand movements) detection
- Viewing angle of 56º in a 360º conical shaped pattern
- Provides 12 ft (3.66 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage

Note: Screw axis is aligned with a long detection segment

SIDE VIEW

| 0 ft | 0 m |
| 9 | 2.7 |

| 3.7 | 1.8 | 0 m | 1.8 | 3.7 |
| 12 | 6 | 0 ft | 6 | 12 |

TOP VIEW

3.7	12
1.8	6
0 m	0 ft
1.8	6
3.7	12

WIRING (DO NOT WIRE HOT)
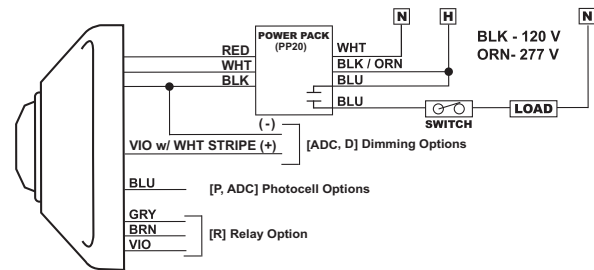
STANDARD WIRING

RED - Power Input (12-24 VAC/VDC)
BLACK - Common
WHITE - Output (high VDC for occupancy)

RELAY OPTION (R)

GRAY / BROWN - Connected during occupied state
VIOLET / BROWN - Connected during unoccupied state
Note: Relay is energized during unoccupied state

DIMMING OPTIONS (D, ADC)

VIOLET w/ WHITE STRIPE - Connect to Violet control wire from 0-10 VDC dimmable ballast
GRAY from Ballast - Connect to sensor Black wire

POWER PACK (PP20)
RED
WHT
BLK
WHT
BLK / ORN
BLU
BLU
N
H
N
BLK - 120 V
ORN- 277 V
SWITCH
LOAD
VIO w/ WHT STRIPE (+)   (-)   [ADC, D] Dimming Options
BLU   [P, ADC] Photocell Options
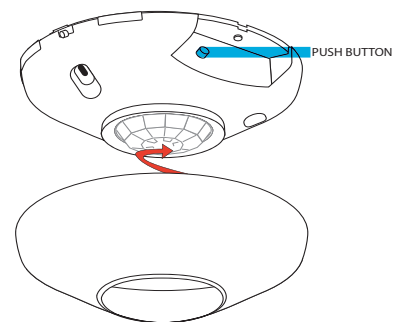GRY
BRN
VIO   [R] Relay Option

PHOTOCELL OPTIONS (P, ADC)

BLUE - Use in place of White ouput wire. Photocell output is high VDC with occupancy & low light. For multi-level control, use two power packs and connect White to primary load and Blue to daylight load.

INSTALLATION

- Mount sensor directly to a ceiling tile or a metallic grid (two self-tapping screws provided).
- Sensor's mounting holes also align with 3.5" octagon or single gang handy box (screws not provided).
- Sensor will detect motions crossing segments more effectively than motions parallel to beams.
- For optimal detection, position sensor such that segments are crossed upon entrance and unable to view outside the space.

PUSH BUTTON

PROGRAMMING

Refer to included instruction card for default settings and directions on programming the sensor via the push-button.

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An *Acuity*Brands Company

T002-005

sensorswitch®

CM 10

EXTENDED RANGE 360° SENSOR
CEILING MOUNT • LOW VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
PIR Occupancy Detection
360° Coverage
Push-Button Programmable
Adjustable Time Delay
100 Hr Lamp Burn-in Timer
Green LED Indicator

PHYSICAL SPECS
SIZE 4.55" Dia. (11.56 cm)
1.55" Deep (3.94 cm)
WEIGHT 6 oz
MOUNTING
Ceiling Tile Surface
3.5" Octagon Box
Single Gang Handy Box
COLOR White

ELECTRICAL SPECS
OPERATING VOLTAGE
12-24 VAC/VDC
CURRENT DRAW
Standard, 4 mA
w/ -R option, 16 mA
DIMMING LOAD
Sinks / Sources < 20mA;
~40 Ballasts @ .5mA each
RECOMMENDED POWER PACK
PP20

ENVIRONMENTAL SPECS
OPERATING TEMP
14° to 160° F (-10° to 71° C)
STORAGE TEMP
-14° to 160° F (-26° to 71° C)
RELATIVE HUMIDITY
20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

The **CM 10** Series Extended Range 360° occupancy sensor incorporates Passive Infrared (PIR) technology into an attractive and economical sensor to provide maximum viewing from the ceiling. When mounted at 9 ft (2.74 m), this sensor views up to 28 ft (8.53 m) in all directions. Its circular coverage pattern is designed for walking motions; making it ideal for T-shaped intersections in corridors, or other areas where wall mounting a sensor is not practical. A long hallway, for example, may require a **HW13** Series Hallway sensor at each end, with **CM 10**'s mounted in the center to fill in the distance. Low ceiling heights are also best covered by the **CM 10**. For example, when mounted at only 7 ft (2.13 m), the height of pick aisles in many distribution centers, the **CM 10** provides a 32 ft (9.75 m) diameter pattern of coverage. In applications where detection of minor motion is also required, use the **CM PDT 10** Series Dual Technology sensor.

SENSOR OPERATION
The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12-24 VAC/VDC and typically operates with a **PP20** or **MP20** power pack, enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art design requires no field calibration or sensitivity adjustments.

OPTIONS

LOW VOLTAGE RELAY (R)
• Enables sensors to interface with other systems (e.g., BMS, lighting panels)
• Provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay
• Only one relay needed per zone
• Changes state when all connected sensors register unoccupied
• Relay requires sensor power to function

OCCUPANCY CONTROLLED DIMMING (D)
• Provides dimming output to control 0-10 VDC dimmable ballasts
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
• Adjustable max/min dim setting

PHOTOCELL (P)
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

PHOTOCELL W/ DIMMING (ADC)
• Photocell within sensor maintains total room light level by controlling levels of 0-10 VDC dimmable ballasts
• Photocell also has full on/off control during periods of occupancy
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant to moisture
• Operates down to -40° F/C

ORDERING INFO   CM 10 [RELAY] [DIMMING/PHOTOCELL] [TEMP/HUMIDITY]

RELAY	DIMMING / PHOTOCELL *CHOOSE ONE ONLY*	TEMP/HUMIDITY
Blank = None **R = Low Voltage Relay**	**Blank = None** **D = Occupancy Controlled Dimming** **P = Photocell** **ADC = Photocell w/ Dimming**	**Blank = Standard** **LT = Low Temp**

COVERAGE PATTERN

10 EXTENDED RANGE LENS

- Best choice for large motion (e.g. walking) detection
- Viewing angle of 67º in a 360º conical shaped pattern
- Provides 28 ft (8.53 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage

Note: Sensor's screw axis is offset 7.5º from a long detection segment

SIDE VIEW

TOP VIEW

| 0 ft | 0 m |

| 9 | 2.7 |

| 8.5 | 6.4 | 4.3 | 2.1 | 0 m | 2.1 | 4.3 | 6.4 | 8.5 |
| 28 | 21 | 14 | 7 | 0 ft | 7 | 14 | 21 | 28 |

8.5	28
4.3	14
0 m	0 ft
4.3	14
8.5	28

WIRING (DO NOT WIRE HOT)

STANDARD WIRING
RED - Power Input (12-24 VAC/VDC)
BLACK - Common
WHITE - Output (high VDC for occupancy)

RELAY OPTION (R)
GRAY / BROWN - Connected during occupied state
VIOLET / BROWN - Connected during unoccupied state
Note: Relay is energized during unoccupied state

DIMMING OPTIONS (D, ADC)
VIOLET w/ WHITE STRIPE - Connect to Violet control wire from 0-10 VDC dimmable ballast
GRAY from Ballast - Connect to sensor Black wire

Wiring diagram:
POWER PACK (PP20)
RED, WHT, BLK
WHT, BLK / ORN, BLU, BLU
N, H, N
BLK - 120 V
ORN- 277 V
SWITCH
LOAD
VIO w/ WHT STRIPE (+) [ADC, D] Dimming Options
(-)
BLU [P, ADC] Photocell Options
GRY, BRN, VIO [R] Relay Option

PHOTOCELL OPTIONS (P, ADC)
BLUE - Use in place of White ouput wire. Photocell output is high VDC with occupancy & low light. For multi-level control, use two power packs and connect White to primary load and Blue to daylight load.

INSTALLATION

- Mount sensor directly to a ceiling tile or a metallic grid (two self-tapping screws provided).
- Sensor's mounting holes also align with 3.5" octagon or single gang handy box (screws not provided).
- Sensor will detect motions crossing segments more effectively than motions parallel to beams.
- For optimal detection, position sensor such that segments are crossed upon entrance and unable to view outside the space.

PUSH BUTTON

A: When walking across beam, detection will occur at approximately 28 feet. (8.53 m)
B: When walking into beam, detection will occur at approximately 24 feet. (7.32 m)

28'
24'
*At 9ft Mtg.
A
B

PROGRAMMING
Refer to included instruction card for default settings and directions on programming the sensor via the push-button.

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T003-004-P

900 Northrop Road, Wallingford, CT 06492 • 1.800.PASSIVE • FX 203.269.9621 • www.sensorswitch.com

sensor**switch** ®

CM PDT 9

STANDARD RANGE 360º SENSOR
CEILING MOUNT • LOW VOLTAGE • DUAL TECHNOLOGY (PDT)

SPECIFICATIONS

FEATURES
Patented Dual Technology with
   PIR / Microphonics Detection
360º Coverage
Push-Button Programmable
Adjustable Time Delay
100 Hr Lamp Burn-in Timer
Green LED Indicator

PHYSICAL SPECS
SIZE 4.55" Dia. (11.56 cm)
   1.55" Deep (3.94 cm)
WEIGHT 6 oz
MOUNTING
   Ceiling Tile Surface
   3.5" Octagon Box
   Single Gang Handy Box
COLOR White

ELECTRICAL SPECS
OPERATING VOLTAGE
   12-24 VAC/VDC
CURRENT DRAW
   Standard, 4 mA
   w/ **R** option, 16 mA
DIMMING LOAD
   Sinks / Sources < 20mA;
   ~40 Ballasts @ .5mA each
RECOMMENDED POWER PACK
   PP20

ENVIRONMENTAL SPECS
OPERATING TEMP
   14º to 160º F (-10º to 71º C)
STORAGE TEMP
   -14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
   20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

Open area office lighting control is made cost-effective with the use of the **CM PDT 9** Series Standard Range 360° occupancy sensor. This small yet powerful sensor provides line-of-sight PIR detection of small motion in a circular pattern, and combines overlapping Microphonics™ coverage for detection of occupants working in their cubical space. By installing multiple **CM PDT 9**s on 30 ft (9.14 m) centers, large control zones are created (typically one per circuit of lighting). The lighting is then controlled in blocks similar to manual switching. Restrooms with stalls, large storage areas with shelving, and libraries with study carrels are also easily and cost- effectively controlled by the **CM PDT 9**.

SENSOR OPERATION
The sensor has Passive Dual Technology (PDT), which first sees motion using Passive Infrared (PIR), and then engages Microphonics™ to hear sounds that indicate continued occupancy. This patented technology uses Automatic Gain Control (AGC) to dynamically self-adapt the sensor to its environment by filtering out constant background noise and detecting only noises typical of human activity. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12-24 VAC/VDC and typically operates with a **PP20** or **MP20** power pack, enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art sensor requires no field calibration or adjustment.

OPTIONS

LOW VOLTAGE RELAY (R)
• Enables sensors to interface with other systems (e.g., BMS, lighting panels)
• Provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay
• Only one relay needed per zone
• Changes state when all connected sensors register unoccupied
• Relay requires sensor power to function

OCCUPANCY CONTROLLED DIMMING (D)
• Provides dimming output to control 0-10 VDC dimmable ballasts
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
• Adjustable max/min dim setting

PHOTOCELL (P)
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

PHOTOCELL W/ DIMMING (ADC)
• Photocell within sensor maintains total room light level by controlling levels of 0-10 VDC dimmable ballasts
• Photocell also has full on/off control during periods of occupancy
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant to moisture
• Operates down to -4º F/ 20º C

ORDERING INFO   CM PDT 9 [RELAY] [DIMMING/PHOTOCELL] [TEMP/HUMIDITY]

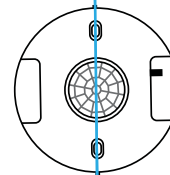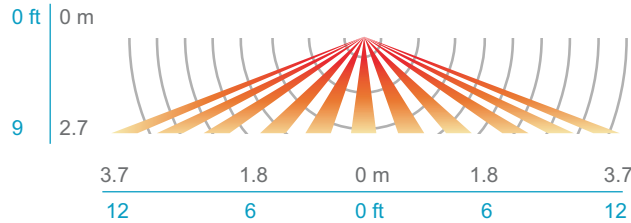| RELAY	DIMMING / PHOTOCELL *CHOOSE ONE ONLY*	TEMP/HUMIDITY

Blank = None
  R = Low Voltage Relay
	Blank = None
	  D = Occupancy Controlled Dimming
	  P = Photocell
	ADC = Photocell w/ Dimming
		Blank = Standard
		LT = Low Temp

COVERAGE PATTERN

9 STANDARD RANGE 360º LENS WITH MICROPHONICS™

• Best choice for small motion (e.g. hand movements) detection
• Viewing angle of 56º in a 360º conical shaped pattern
• Provides 12 ft (3.66 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
• 8 to 15 ft (2.44 to 4.57 m) mounting heights provide 10 to 20 ft (3.05 to 6.10 m) radial coverage
• Microphonics™ provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is also utilized to prevent non-occupant noises from keeping the lights on.

Note: Screw axis is aligned with a long detection segment

TOP VIEW
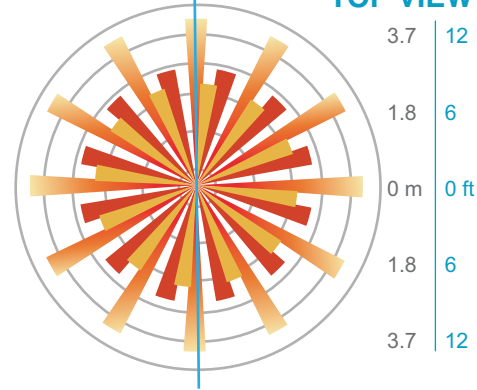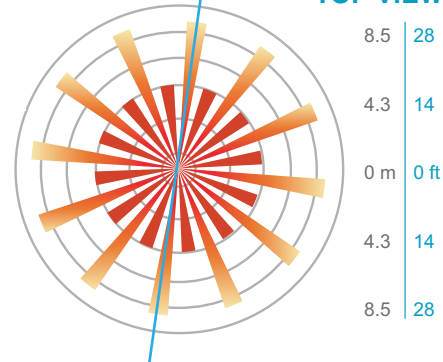
SIDE VIEW

WIRING (DO NOT WIRE HOT)

STANDARD WIRING
RED - Power Input (12-24 VAC/VDC)
BLACK - Common
WHITE - Output (high VDC for occupancy)

RELAY OPTION (R)
GRAY / BROWN - Connected during occupied state
VIOLET / BROWN - Connected during unoccupied state
Note: Relay is energized during unoccupied state

DIMMING OPTIONS (D, ADC)
VIOLET w/ WHITE STRIPE - Connect to Violet control wire from 0-10 VDC dimmable ballast
GRAY from Ballast - Connect to sensor Black wire

PHOTOCELL OPTIONS (P, ADC)
BLUE - Use in place of White ouput wire. Photocell output is high VDC with occupancy & low light. For multi-level control, use two power packs and connect White to primary load and Blue to daylight load.

INSTALLATION

• Mount sensor directly to a ceiling tile or a metallic grid (two self-tapping screws provided)
• Sensor's mounting holes also align with 3.5" octagon or single gang handy box (screws not provided)
• Sensor will detect motions crossing segments more effectively than motions parallel to beams
• For optimal detection, position sensor such that segments are crossed upon entrance and unable to view outside the space
• For maximum Microphonics™ sensitivity avoid locating sensor near HVAC air diffusers.

PROGRAMMING
Refer to included instruction card for default settings and directions on programming the sensor via the push-button.

sensorswitch An *Acuity*Brands Company

T010-004-P

sensor switch

CM PDT 10

EXTENDED RANGE 360º SENSOR
CEILING MOUNT • LOW VOLTAGE • DUAL TECHNOLOGY (PDT)

SPECIFICATIONS

FEATURES
Patented Dual Technology with
   PIR / Microphonics Detection
360º Coverage
Push-Button Programmable
Adjustable Time Delay
100 Hr Lamp Burn-in Timer
Green LED Indicator

PHYSICAL SPECS
SIZE 4.55" Dia. (11.56 cm)
   1.55" Deep (3.94 cm)
WEIGHT 6 oz
MOUNTING
   Ceiling Tile Surface
   3.5" Octagon Box
   Single Gang Handy Box
COLOR White

ELECTRICAL SPECS
OPERATING VOLTAGE
   12-24 VAC/VDC
CURRENT DRAW
   Standard, 4 mA
   w/ -R option, 16 mA
DIMMING LOAD
   Sinks / Sources < 20mA;
   ~40 Ballasts @ .5mA each
RECOMMENDED POWER PACK
   PP20

ENVIRONMENTAL SPECS
OPERATING TEMP
   14º to 160º F (-10º to 71º C)
STORAGE TEMP
   -14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
   20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

Classrooms are ideal applications for the **CM PDT 10** Series Extended Range 360º occupancy sensor. When mounted at 9 ft (2.74 m), this sensor provides line of sight Passive Infrared (PIR) detection of walking type motions up to 28 ft (8.53 m) in all directions. Additionally, the **CM PDT 10** provides overlapping Microphonics™ technology to detect smaller motions and occupant movements that occur behind obstructions. This is important for classrooms filled with obstructions like shelving, hanging projects, or lab benches. When comparing small motion detection, the **CM PDT 10** far out performs dual technology sensors on the market that are specified with 2,000 ft^2 of coverage. Spaces with low ceiling heights are also best covered by the **CM PDT 10**. For example, when mounted at the 7 ft (2.13 m) ceiling height of many distribution center pick aisles, the **CM PDT 10** provides a 32 ft (9.75 m) diameter pattern of coverage. Additionally, the **CM PDT 10** may be used in combination with other sensors to customize coverage for very large or irregularly shaped spaces.

SENSOR OPERATION
The sensor has Passive Dual Technology (PDT), which first sees motion using Passive Infrared (PIR), and then engages Microphonics™ to hear sounds that indicate continued occupancy. This patented technology uses Automatic Gain Control (AGC) to dynamically self-adapt the sensor to its environment by filtering out constant background noise and detecting only noises typical of human activity. When occupancy is detected, a DC output goes high and can drive up to 200 mA of connected load. The sensor is powered with 12-24 VAC/VDC and typically operates with a **PP20** or **MP20** power pack, enabling complete 20 Amp circuits to be controlled. An internal timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art sensor requires no field calibration or adjustment.

OPTIONS

LOW VOLTAGE RELAY (R)
• Enables sensors to interface with other systems (e.g., BMS, lighting panels)
• Provides dry contact closure via a SPDT, 1 Amp, 40 Volt relay
• Only one relay needed per zone
• Changes state when all connected sensors register unoccupied
• Relay requires sensor power to function

OCCUPANCY CONTROLLED DIMMING (D)
• Provides dimming output to control 0-10 VDC dimmable ballasts
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
• Adjustable max/min dim setting

PHOTOCELL (P)
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

PHOTOCELL W/ DIMMING (ADC)
• Photocell within sensor maintains total room light level by controlling levels of 0-10 VDC dimmable ballasts
• Photocell also has full on/off control during periods of occupancy
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant to moisture
• Operates down to -4º F/ 20º C

ORDERING INFO

CM PDT 10 [RELAY] [DIMMING/PHOTOCELL] [TEMP/HUMIDITY]

RELAY
Blank = None
   R = Low Voltage Relay

DIMMING / PHOTOCELL *CHOOSE ONE ONLY*
Blank = None
   D = Occupancy Controlled Dimming
   P = Photocell
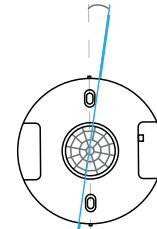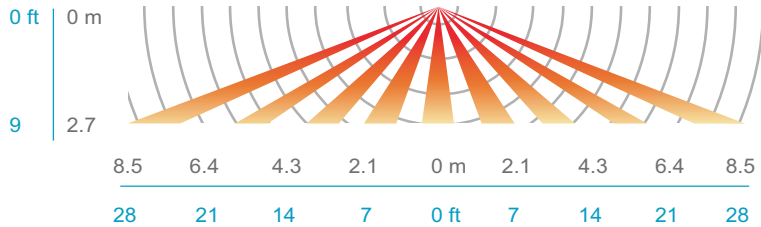ADC = Photocell w/ Dimming

TEMP/HUMIDITY
Blank = Standard
   LT = Low Temp

COVERAGE PATTERN

10 EXTENDED RANGE 360º LENS WITH MICROPHONICS™

- Best choice for large motion (e.g. walking) detection
- Viewing angle of 67º in a 360º conical shaped pattern
- Provides 28 ft (8.53 m) radial coverage when mounted to standard 9 ft (2.74 m) ceiling
- 7 to 15 ft (2.13 to 4.57 m) mounting heights provide 16 to 36 ft (4.88 to 10.97 m) radial coverage
- Microphonics™ provides overlapping detection of human activity over the complete PIR coverage area. Advanced filtering is also utilized to prevent non-occupant noises from keeping the lights on.

Note: Sensor's screw axis is offset 7.5º from a long detection segment

SIDE VIEW

0 ft	0 m								
9	2.7								
		8.5	6.4	4.3	2.1	0 m	2.1	4.3	6.4	8.5
		28	21	14	7	0 ft	7	14	21	28

TOP VIEW

8.5	28
4.3	14
0 m	0 ft
4.3	14
8.5	28

WIRING (DO NOT WIRE HOT)

STANDARD WIRING
RED - Power Input (12-24 VAC/VDC)
BLACK - Common
WHITE - Output (high VDC for occupancy)

RELAY OPTION (R)
GRAY / BROWN - Connected during occupied state
VIOLET / BROWN - Connected during unoccupied state
Note: Relay is energized during unoccupied state

DIMMING OPTIONS (D, ADC)
VIOLET w/ WHITE STRIPE - Connect to Violet control wire from 0-10 VDC dimmable ballast
GRAY from Ballast - Connect to sensor Black wire

POWER PACK (PP20)

RED	WHT
WHT	BLK / ORN
BLK	BLU
	BLU

N H BLK - 120 V N
ORN- 277 V

SWITCH LOAD

(-)
VIO w/ WHT STRIPE (+)   [ADC, D] Dimming Options

BLU   [P, ADC] Photocell Options

GRY
BRN   [R] Relay Option
VIO

PHOTOCELL OPTIONS (P, ADC)
BLUE - Use in place of White ouput wire. Photocell output is high VDC with occupancy & low light. For multi-level control, use two power packs and connect White to primary load and Blue to daylight load.

INSTALLATION

- Mount sensor directly to a ceiling tile or a metallic grid (two self-tapping screws provided).
- Sensor's mounting holes also align with 3.5" octagon or single gang handy box (screws not provided).
- Sensor will detect motions crossing segments more effectively than motions parallel to beams.
- For optimal detection, position sensor such that segments are crossed upon entrance and unable to view outside the space.
- For maximum Microphonics™ sensitivity, avoid locating sensor near HVAC air diffusers.

PUSH BUTTON

*At 9ft Mtg.

28'
24'
A
B

A: When walking across beam, detection will occur at approximately 28 ft (8.53 m)
B: When walking into beam, detection will occur at approximately 24 ft (7. 32 m)

PROGRAMMING
Refer to included instruction card for default settings and directions on programming the sensor via the push-button.

sensorswitch®
An *Acuity*Brands Company

T011-004-P

sensorswitch™

TECHNICAL DATA
TYPICAL APPLICATIONS
• Used with Low Voltage Sensors
• Multiple Sensors
• Multiple Loads
POWER PACK HIGHLIGHTS
• Dual Voltage Transformer
• Self-Contained Relay
• Powers up to 14 sensors
SPECIFICATIONS
• Size:(1/2" inch chase nipple not inc.)
  MP-20 & MSP-20: $2^1/4$" x 3" x $1^7/8$"
• Mounting: 1/2" inch chase nipple
• Operating Voltage: 120, 240, or
   277 VAC
• Each Relay: 20 Amps
• 1 HP Motor Load
• Output Voltage: 15 VDC, 150 mA
• Class II: 18 AWG, up to 2,000 ft.
• Plenum Rated
• Relative Humidity: 20 to 90%
   non-condensing
• Operating Temp: 14º to 160º F
• Storage Temp: -14º to 160º F
• UL and CUL Listed
• 5 Year Warranty
• Made in U.S.A.
LOW TEMP/HI HUMIDITY(-LT)
• Conformally Coated PCB
• Operates down to -40º F
• Corrosion resistant from moisture
PLENUM CONSIDERATIONS
Most local codes allow for small plastic controls in Return Air Plenums; *Some Do Not!* To meet local code, the Power Pack can be mounted inside an adjacent (Deep) junction box as shown below.

MP-20
MSP-20

Plenum Rated

Mini Power Packs are the heart of the Low Voltage Sensor System. The *MP-20* transforms 120, 240 or 277 Volts to class II 15 VDC to power the remote sensors. Although Plenum Rated, the elongated mounting nipple allows for the *MP-20* to be mounted either directly thru a 1/2" inch knockout in a junction box, or to be located inside an adjacent box for specific local code requirements. Up to 14 sensors may be connected to one *MP-20*. Multi-circuit control can be handled by multiple *MP-20's* and Slave Packs (*MSP-20*) may be configured. *MP-20's* can be wired continuously hot (line side), or on the switch leg (load side) without nuisance delays upon turn "On".

MINI POWER PACK OPERATION
The Mini Power Pack consists of a transformer and a relay. The tranformer has a dual primary high voltage input, accepting 120, 240, or 277 VAC. The secondary voltage provides power to Sensor Switch low voltage heads. When the sensor head detects motion, they electronically signal the power pack to close the relay(s) connected to the lighting system.

LOW VOLTAGE OPERATION AND TEST
The Low Voltage Wires are color coded Red (15 VDC), Black (Common), and White (Occupancy Signal). With no sensors connected, touch the Red wire to the White. The lights should turn "On". Remove the connection and the lights should turn "Off". With the sensors connected, the Red and Black wires provide DC power to the remote sensors, and when there is occupancy detected, the White wire produces a 15 VDC signal from the sensor to the power pack initiating the lights to "On". Upon initial power up, the Sensors automatically send an "On" signal until the sensors have stabilized and "Timed Out".

SIZING OF THE SYSTEM - VARIOUS COMBINATIONS
Combining Power Packs provides for additional power to drive remote devices. Maximum numbers of remote sensors are shown below based on the Power Pack/ Slave Pack being used: *Maximum number of "Relays" is 30.*

	Sensors	Sensors with Relay
1 MP-20	14	8
1 MP-20 w/MSP-20	7	6
2 MP-20	28	16

Note 1: Only three relays may be controlled with one Mini Power Pack. If more than three circuits are required, multiple MiniPower Packs must be used.

Note 2: Only one "Sensor with Relay" is required in most cases. See Technical Data on Low Voltage Sensors and SPDT EMS Interface Option.

SYSTEMS CONSIDERATIONS
The local override switch may be upstream or downstream of an *MP-20*. However, if an *MSP-20* Auxiliary Relay controller is being used, the switch(es) should be downstream on the load side of the relay. If power is disconnected to the Power Pack all subsequent relays will open, turning off all of the loads. If wiring the local switches before the Power Pack and Slave Pack, use multiple *MP-20's*, one for each circuit. This will allow for one circuit to remain powered, keeping the system operational when the other is turned off. When controlling a dimming circuit, *MP-20* must be wired before dimmer, or *MSP-20* may be wired after dimmer.

CATALOG INFORMATION

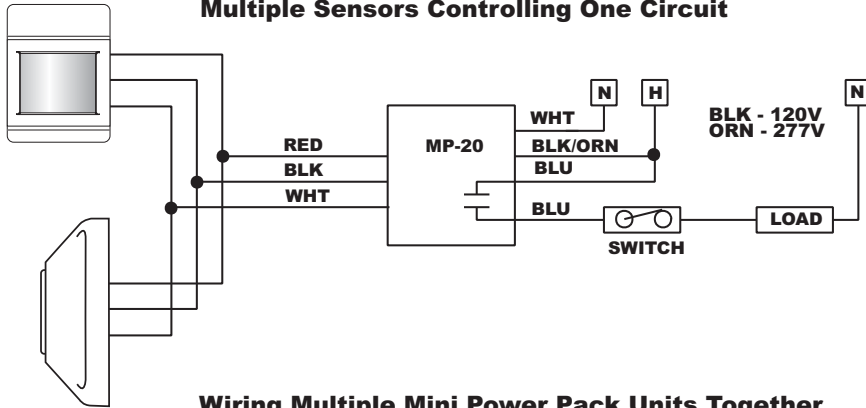| MODEL#	DESCRIPTION	OUTPUT VOLTAGE	OUTPUT CURRENT
MP-20	Power Pack with 20 Amp Relays	15 to 24 VDC	70 to 110 mA
MSP-20	Slave Pack with 20 Amp Relays	N/A	40 mA(consumption)

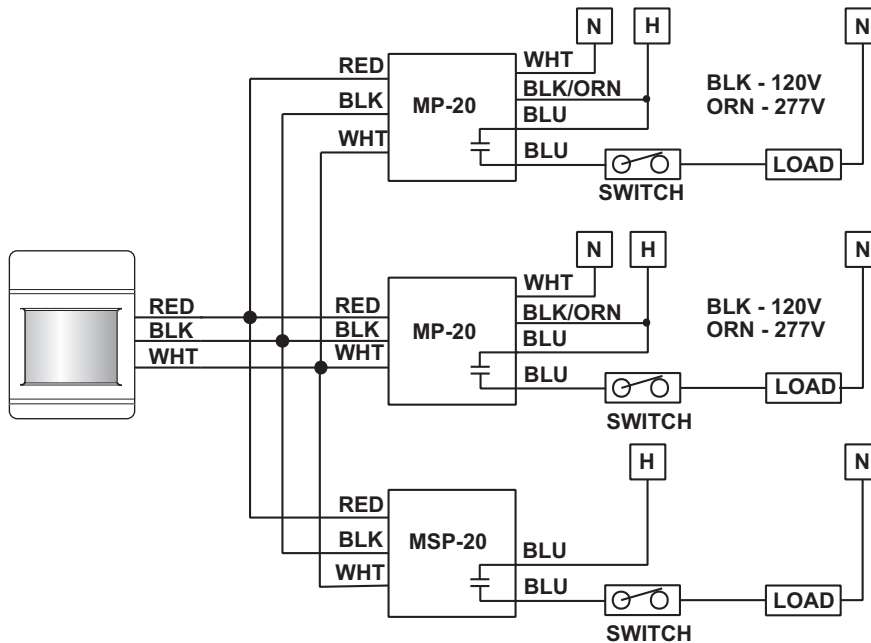**Add suffix -LT for Low Temp/Hi Humidity

T053-001

TYPICAL WIRING DIAGRAMS - DO NOT WIRE HOT

NOTE: The Power Pack must be connected to a single phase Hot and Neutral System. For 120 VAC, connect the Black wire to Hot, White wire to Neutral, and Cap off the Orange wire. For 240-277 VAC, connect the Orange to Hot, White to Neutral, and Cap off the Black wire. *Never connect both the Black and Orange wires!* Low Voltage wire can be 18 to 22 AWG; shielding is not necessary.
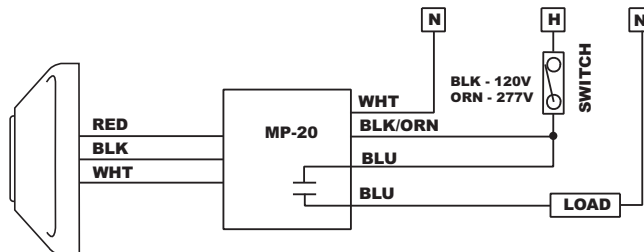
Multiple Sensors Controlling One Circuit

RED
BLK
WHT
MP-20
WHT
BLK/ORN
BLU
BLU
SWITCH
LOAD
N H N
BLK - 120V
ORN - 277V

Wiring Multiple Mini Power Pack Units Together

RED
BLK
WHT
MP-20
WHT
BLK/ORN
BLU
BLU
SWITCH
LOAD
N H N
BLK - 120V
ORN - 277V

RED
BLK
WHT
RED
BLK
WHT
MP-20
WHT
BLK/ORN
BLU
BLU
SWITCH
LOAD
N H N
BLK - 120V
ORN - 277V

RED
BLK
WHT
MSP-20
BLU
BLU
SWITCH
LOAD
H N

One Sensor Controlling One Circuit

RED
BLK
WHT
MP-20
WHT
BLK/ORN
BLU
BLU
LOAD
N H N
SWITCH
BLK - 120V
ORN - 277V

BZ-50 Universal Voltage Power Pack

High-efficiency switching
power supply

Overcurrent protection
(low-voltage)

Plenum rated

120/230/277VAC,
50/60Hz

Zero crossing for reliability
and increased product life

Model #
BZ-50 Power Pack
120/230/277VAC, 50/60Hz, 225mA output
20A ballast or incandescent load
Motor load: 1HP@120/240VAC
Class 2 power supply
UL 2043 Plenum Rated

WattStopper by Legrand
Santa Clara, CA • 800.879.8585

PROJECT
LOCATION/TYPE

Product Overview

Description

The BZ-50 Universal Voltage Power Pack provides 24 VDC operating voltage to WattStopper's low-voltage occupancy sensors. This device is constructed with environmentally friendly materials and is RoHS-compliant.

Operation

The BZ-50 consists of a high-efficiency switching power supply and a high-current relay. It has an input of 120/230/277 VAC, 50/60Hz, and an output of 24VDC, 225mA. It turns the connected load on and off automatically based on occupancy sensor input.

Plenum Rated

The BZ-50 Power Pack is comprised of Teflon-coated low-voltage leads and an ABS, UL 2043 and 94V-0 plastic resin enclosure that is plenum-rated. As a result, the BZ-50 does not require installation into the junction box, but can be cost-effectively installed directly into the plenum.

Applications

The BZ-50 Power Pack is designed to be flexible enough to control almost any lighting or HVAC load, such as lighting circuits, self-contained air conditioners, pumps, fans, motors, VAV systems, motorized damper controls and setback thermo-stats. The BZ-50 is well-suited for any application which requires high-voltage switching through low-voltage controls. By linking power packs and sensors, an almost unlimited number of configura-tions can be obtained.

Features

- Self-contained power supply relay system
- Efficient switching power supply providing optimized current output based on number of sensors
- LED indicates status of relay or if there is a low-voltage overcurrent
- RoHS-compliant
- Zero crossing circuitry for reliability and increased product life
- UL 2043 plenum rated for cost-effective installation
- 1/2" snap-in nipple attaches to standard electrical enclosures through 1/2" knockouts
- 14 AWG wires on the relay for 20A operation
- Qualifies for ARRA-funded public works projects

WattStopper®
www.wattstopper.com
800.879.8585

Specifications

- 120/230/277VAC, 50/60Hz voltage input
- Secondary voltage of 24 VDC
- Secondary output of 225 mA (with relay connected)
- Low-voltage leads are rated for 300 volts
- UL-rated 94 V-O grey plastic enclosure

- Dimensions: 1.6" x 2.75" x 1.6" (40.6mm x 69.9mm x 40.6mm) H x W x D with a 1/2" (12.7mm) snap-in nipple
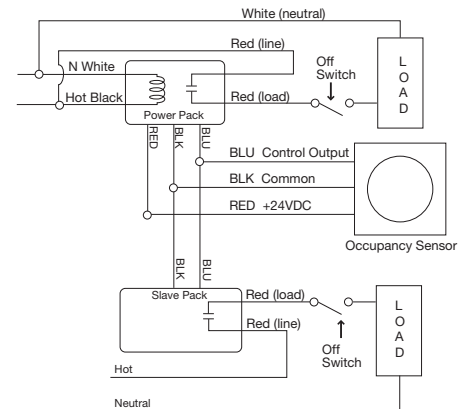- UL and cUL listed
- Five year warranty

System Layout & Wiring

Installation Diagram

Power Pack

High voltage connection made inside J-box
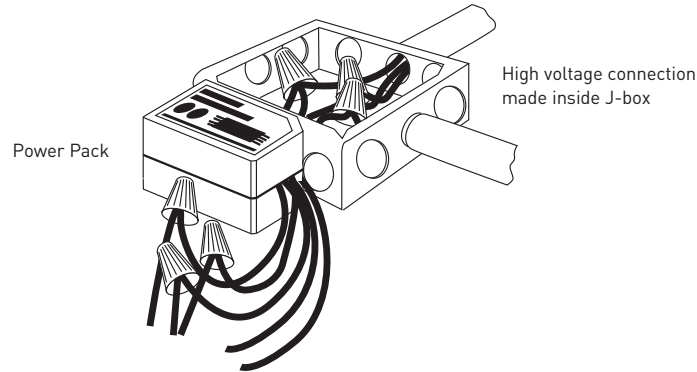
Wiring with Occupancy Sensor
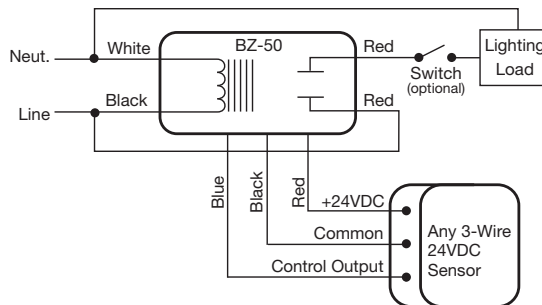
Auxiliary Relay Pack with Sensor

Ordering Information

Catalog No.	Input Voltage	Load Ratings			Output
		Ballast(A)	Incan(A)	Motor(HP)	
☐ BZ-50	120/230/277VAC; 50/60Hz	20	20	1*	24 VDC; 225 mA**
☐ BZ-50-U					
☐ BZ-50-FTA					

*1 Hp rated at 120/250 VAC. **Output is 225 mA with relay connected.

Installation Notes

1) All WattStopper power packs should be installed in accordance with state. local, and national electrical codes and requirements.
2) Power packs are designed to attach to existing or new electrical enclosures with .5" 125.40mmJ knockout (check electrical codes in your area).
3) Most applications require UL-listed, 18-22 AWG, 3-conductor, Class 2 cables for low-voltage wiring. For plenum return ceilings use UL-listed plenum-approved cables.

sensor switch ®

WSD

WALL SWITCH DECORATOR SENSOR
LINE VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
PIR Occupancy Detection
Self-Contained Relay -
    No Power Pack Needed
Interchangeable Hot & Load Wires -
    Impossible to Wire Backwards
No Neutral Connection Required
Small Motion Detection to 20 ft (6.10 m)
Self-Grounding Mounting Strap
No Minimum Load
Push-Button Programmable w/o
    Removing the Switch Plate
Adjustable Time Delay
3-way & 4-way Switching
Green LED Indicator

PHYSICAL SPECS
SIZE 4.2"H x 1.8"W x 1.5"D
    (10.67cm x 4.57cm x 3.81cm)
WEIGHT 5 oz
MOUNTING Single Gang Switch Box
MOUNTING HEIGHT 30-48 in
    (76.2-121.9 cm)
COLORS White, Ivory, Gray
    Almond, Black

ELECTRICAL SPECS
MAXIMUM LOAD
    800 W @ 120 VAC
    1200 W @ 277 VAC
    1500 W @ 347 VAC
MINIMUM LOAD None
MOTOR LOAD 1/4 HP
FREQUENCY 50/60 Hz
    (timers are 1.2x for 50 Hz)

ENVIRONMENTAL SPECS
OPERATING TEMP
    14º to 160º F (-10º to 71º C)
STORAGE TEMP
    -14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
    20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

The **WSD** is a stylish, easy to install, and simple to use Wall Switch Decorator style Passive Infrared (PIR) sensor. It is ideal for private offices, copy rooms, closets, or any small enclosed space without obstructions. A user programmable time delay ensures that once the room is vacated the sensor will time out and turn off the lights. Additionally, the **WSD** sensor has several On Modes and Switch Modes that can be programmed using the front push-button. For rooms with obstructions, the Dual Technology **WSD PDT** Series sensor is recommended.

SENSOR OPERATION & MODES
The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a self-contained relay switches the connected lighting load on. The sensor is line powered and switches line voltage (see specifications). A timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and resets every time occupancy is re-detected. This state-of-the-art design requires no field calibration or sensitivity adjustments.

ON MODES
AUTOMATIC ON (default) - Lights come on when occupancy is detected.
MANUAL ON - Requires the occupant manually turn on lights via the push-button.
REDUCED TURN ON - Sensor is initially set to only detect large motions, effectively ignoring PIR signals reflected off of surfaces, while still sensing occupants when they enter the room. Once lights are on, the sensor returns to maximum sensitivity.

SWITCH MODES
PREDICTIVE OFF MODE (default) - This mode allows occupants to turn lights off via the switch without losing the convenience of having the lights automatically turn on when they re-enter the room. Pressing the switch turns the lights off and temporarily disables the occupancy detection in the sensor. After a short exit time delay, the occupancy detection reactivates and monitors for an additional grace period. If no occupancy is detected, the zone will remain in Automatic On operation. If occupancy is detected, the zone will go to a Permanent Off mode, requiring the switch to be pressed again in order to turn the lights on and restore the sensor to Automatic On operation.
PERMANENT OFF - Pressing the switch turns the lights and the sensor off. Lights will not come on until switch is pressed again.
SWITCH DISABLE - Prevents user from manually turning off the lights via the push-button. Button can still be utilized for programming.

OPTIONS

VANDAL-RESISTANT LENS (V)
• Ideal for high abuse or public areas, where occupants simply come and go
• Decreases detection range by 50%

INHIBIT PHOTOCELL (P)
• Auto set-point calibration
• Photocell prevents lights from turning on if adequate daylight is available, but does not turn lights off

347 VAC (347)
• Allows sensor to be powered from and switch 347 VAC
• Wall Plate Provided

COLOR
• White, Ivory, Gray, Almond, Black
• Wall Plate Provided

LOW TEMP/HIGH HUMIDITY (LT)
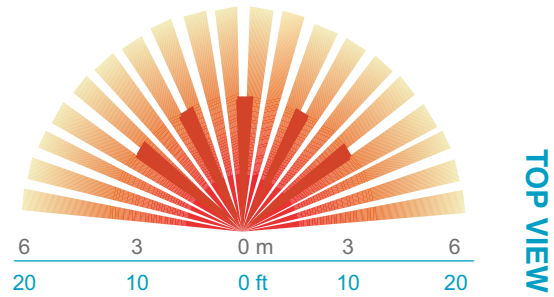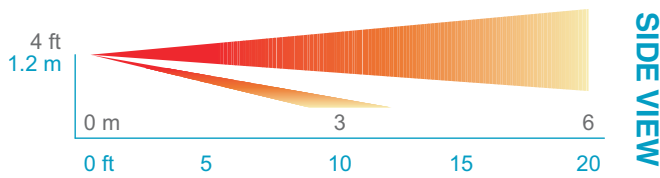• Sensor is corrosion resistant
• Operates down to -40º F/C

ORDERING INFO   WSD [LENS] [PHOTOCELL] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
Blank = None	Blank = None	Blank = 120/277 VAC	WH = White	Blank = Standard
V = Vandal Resistant	P = Photocell	347 = 347 VAC	IV = Ivory	LT = Low Temp
			GY = Gray	
			AL = Almond	
			BK = Black	

COVERAGE PATTERN

WSD WALL SWITCH DECORATOR LENS

- Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
- Large motion (e.g. walking) detection up to 50 ft (15.24 m)
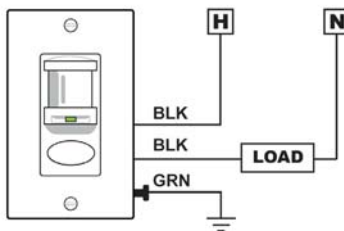- Wall-to-Wall coverage

WIRING (DO NOT WIRE HOT)

STANDARD WIRING

BLACK* - Line Input
BLACK* - Load Output } *BLACK wires can be reversed
GREEN SCREW - Ground (required connection)

347 VAC OPTION (347)

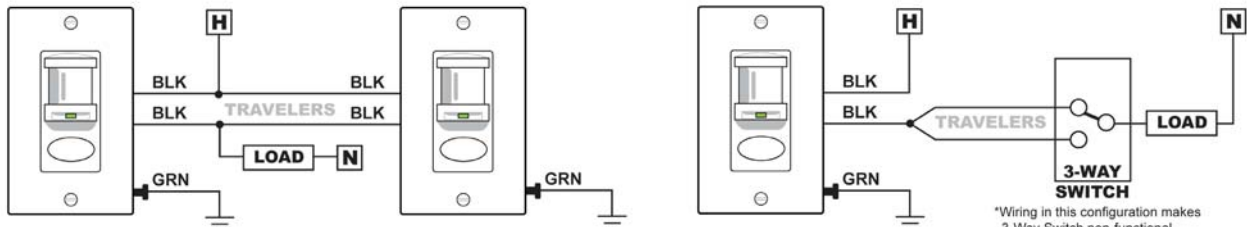Black wires are replaced w/ Red wires

STANDARD CONFIGURATION

BI-LEVEL CONFIGURATION

Note: Connection to Ground required for sensor to function

3-WAY CONFIGURATIONS

Travelers are used to wire sensors (or sensor and 3-way switch) i

Note: Connection to Ground required for sensor to function

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.
Attention: Risque d'incendie : Pauissance Maximales Des Lampes 1500 Watts, Type 347 VAC.
Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

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T059-004-P

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WSD 2P

WALL SWITCH DECORATOR SENSOR
LINE VOLTAGE • 2-POLE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
PIR Occupancy Detection
Two Self-Contained Relays -
    No Power Packs Needed
1st Pole Auto-On, 2nd Pole Manual-On
Interchangeable Hot & Load Wires -
    Impossible to Wire Backwards
No Neutral Connection Required
Small Motion Detection to 20 ft (6.10 m)
Self-Grounding Mounting Strap
No Minimum Load
Adjustable Time Delay / Pole
Replaces Two Switches at Once
Push-Button Programmable w/o
    Removing the Switch Plate
Green LED Indicator

PHYSICAL SPECS
SIZE (not including mounting strap)
    2.74"H x 1.68"W x 1.63"D
    (6.96cm x 4.27cm x 4.14cm)
WEIGHT 5 oz
MOUNTING Single Gang Switch Box
MOUNTING HEIGHT 30-48 in
    (76.2-121.9 cm)
COLORS White, Ivory, Gray,
    Almond, Black

ELECTRICAL SPECS
MAXIMUM LOAD / POLE
    800 W @ 120 VAC
    1200 W @ 277 VAC
    1500 W @ 347 VAC
MINIMUM LOAD None
MOTOR LOAD 1/4 HP
FREQUENCY 50/60 Hz
    (timers are 1.2x for 50 Hz)

ENVIRONMENTAL SPECS
OPERATING TEMP
    14º to 160º F (-10º to 71º C)
STORAGE TEMP
    -14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
    20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

The **WSD 2P** Series is a Wall Switch Decorator style Passive Infrared (PIR) sensor designed to control two independent loads. Utilizing two isolated power relays, the **WSD 2P** is factory set to automatically turn load 1 on when initial occupancy is detected while holding load 2 off until the push-button is pressed. Although perfect for rooms wired for bi-level lighting, the **WSD 2P** is also convenient for controlling multiple load types and/or voltages (for example a restroom light and fan). For rooms with obstructions, the Dual Technology **WSD PDT 2P** should be used. Additionally, the settings of the **WSD 2P** Series sensors can be programmed, without removing the switch plate, by entering simple command sequences via the push-button.

SENSOR OPERATION
The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, the 1st Pole's relay will switch on the connected load. The 2nd Pole's relay can be switched on by pressing the units push-button. The sensor is line powered and switches line voltage (see specifications). Two timers, each factory set at 10 minutes, keep the lights on during brief periods of inactivity. These timers are each push-button programmable from 30 seconds to 20 minutes, and are reset every time occupancy is re-detected. This state-of-the-art design requires no field calibration or sensitivity adjustments.

OPTIONS

VANDAL-RESISTANT LENS (V)
• Ideal for high abuse or public areas, where occupants simply come and go
• Decreases detection range by 50%

PHOTOCELL (P)
• Auto set-point calibration
• Maintains two set-points, enabling separate control of both poles
• Photocell prevents lights from turning on if adequate daylight is available, but does not turn lights off

347 VAC (347)
• Allows sensor to be powered from and switch 347 VAC
• Wall plate provided

COLOR
• White, Ivory, Gray, Almond, Black
• Wall plate provided
• Must be specified

LOW TEMP/HIGH HUMIDITY (LT)
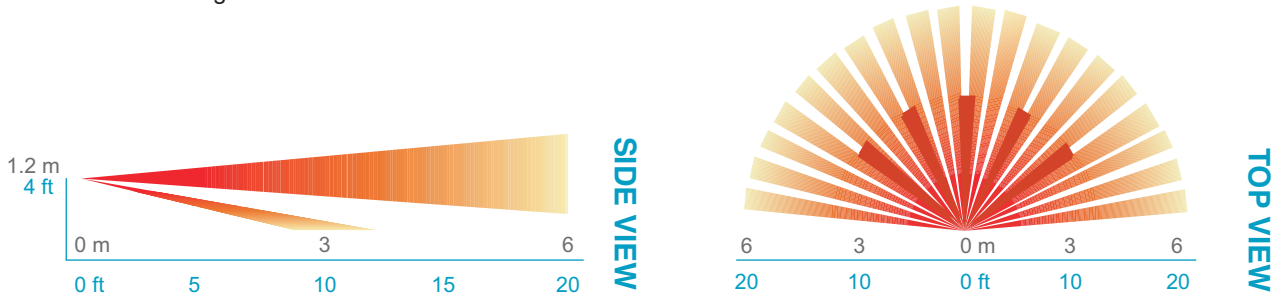• Sensor is corrosion resistant
• Operates down to -40º F/C

ORDERING INFO   WSD 2P [LENS] [PHOTOCELL] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
Blank = None	Blank = None	Blank = 120/277 VAC	WH = White	Blank = Standard
V = Vandal Resistant	P = Photocell	347 = 347 VAC	IV = Ivory	LT = Low Temp
			GY = Gray	
			AL = Almond	
			BK = Black	

COVERAGE PATTERN

WSD WALL SWITCH DECORATOR LENS

• Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
• Large motion (e.g. walking) detection up to 50 ft (15.24 m)
• Wall-to-Wall coverage

SIDE VIEW

1.2 m
4 ft

0 m		3		6
0 ft	5	10	15	20

TOP VIEW

6	3	0 m	3	6
20	10	0 ft	10	20

CONTROL MODES

ON MODES (programmable per pole)

AUTOMATIC ON (default Pole 1) **-** Lights come on when occupancy is detected.
MANUAL ON (default Pole 2) **-** Requires the occupant to manually turn on the lights via the push-button.
REDUCED TURN ON - Sensor is initially set to only detect large motions, effectively ignoring any PIR signals reflected off of surfaces, while still sensing occupants when they enter the room. Once lights are on, the sensor returns to maximum sensitivity.

SWITCH MODES (programmable per pole)

PREDICTIVE OFF MODE (default Pole 1) **-** This mode allows occupants to turn lights off via the switch without losing the convenience of having the lights automatically turn on when they re-enter the room. Pressing the switch turns the lights off and temporarily disables the occupancy detection in the sensor. After a short exit time delay, the occupancy detection reactivates and monitors for an additional grace period. If no occupancy is detected, the zone will remain in Automatic On operation. If occupancy is detected, the zone will go to a Permanent Off mode, requiring the switch to be pressed again in order to turn the lights on and restore the sensor to Automatic On operation.
PERMANENT OFF (default Pole 2) **-** Pressing the switch turns the lights and the sensor off. Lights will not come on until switch is pressed again.
SWITCH DISABLE - Prevents user from manually turning off the lights via the push-button. Button can still be utilized for programming.
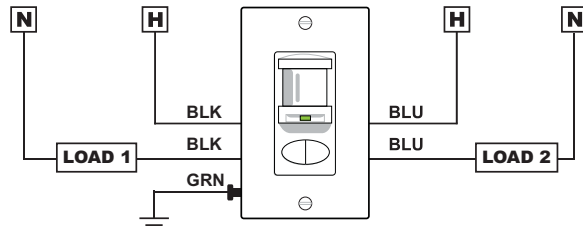
WIRING (DO NOT WIRE HOT)

STANDARD WIRING

BLACK* - Line Input 1 ⎫
BLACK* - Load Output 1 ⎬ *BLACK wires can be reversed
BLUE** - Line Input 2 ⎫
BLUE** - Load Output 2 ⎬ **BLUE wires can be reversed
GREEN SCREW - Ground (required connection)

347 VAC OPTION (347)

Black wires are replaced w/ Red wires

N **H** **H** **N**

BLK   BLU
BLK   BLU
LOAD 1 BLK   BLU LOAD 2
GRN

Note: Connection to Ground required for sensor to funciton.
Unit powers off BLK Hot (Line) Input

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.
Attention: Risque d'incendie : Pauissance Maximales Des Lampes 1500 Watts, Type 347 VAC.
Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

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T064-004-P

WSD PDT

WALL SWITCH DECORATOR SENSOR
LINE VOLTAGE • PASSIVE DUAL TECHNOLOGY (PDT)

SPECIFICATIONS

FEATURES
Patented Dual Technology with PIR /
Microphonics™ Detection
Self-Contained Relay -
No Power Pack Needed
Interchangeable Hot & Load Wires -
Impossible to Wire Backwards
No Neutral Connection Required
Small Motion Detection to 20 ft (6.10 m)
Self-Grounding Mounting Strap
No Minimum Load
Push-Button Programmable w/o
Removing the Switch Plate
Adjustable Time Delay
3-way & 4-way Switching
Green LED Indicator

PHYSICAL SPECS
SIZE 4.2"H x 1.8"W x 1.5"D
(10.67cm x 4.57cm x 3.81cm)
WEIGHT 5 oz
MOUNTING Single Gang Switch Box
MOUNTING HEIGHT 30-48 in
(76.2-121.9 cm)
COLORS White, Ivory, Gray,
Almond, Black

ELECTRICAL SPECS
MAXIMUM LOAD
800 W @ 120 VAC
1200 W @ 277 VAC
1500 W @ 347 VAC
MINIMUM LOAD None
MOTOR LOAD 1/4 HP
FREQUENCY 50/60 Hz
(timers are 1.2x for 50 Hz)

ENVIRONMENTAL SPECS
OPERATING TEMP
14º to 160º F (-10º to 71º C)
STORAGE TEMP
-14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

The **WSD PDT** Series is a Wall Switch Decorator style Passive Dual Technology (PDT) occupancy sensor. The combination of Passive Infrared and patented Microphonics™ detection allows this sensor to literally see & hear occupants. It is ideal for restrooms with stalls, private offices where occupant turns their back to the sensor, or rooms with obstructions.

SENSOR OPERATION & MODES
Passive Dual Technology (PDT) sensors first see motion using Passive Infrared (PIR) and then engage Microphonics™ to hear sounds that indicate continued occupancy. This patented technology uses Automatic Gain Control (AGC) to dynamically self-adapt a sensor to its environment by filtering out constant background noise and detecting only noises typical of human activity. When occupancy is detected, a self-contained relay switches the connected lighting load on. The sensor is line powered and can switch line voltage (see specifications). A timer, factory set at 10 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. If needed, a 10 second grace period also allows the lights to be voice reactivated after shutting off. This state-of-the-art design requires no field calibration or sensitivity adjustments.

ON MODES
AUTOMATIC ON (default) - Lights come on when occupancy is detected.
MANUAL ON - Requires the occupant manually turn on lights via the push-button.
REDUCED TURN ON - Sensor is initially set to only detect large motions, effectively ignoring PIR signals reflected off of surfaces, while still sensing occupants when they enter the room. Once lights are on, the sensor returns to maximum sensitivity.

SWITCH MODES
PREDICTIVE OFF MODE (default) - This mode allows occupants to turn lights off via the switch without losing the convenience of having the lights automatically turn on when they re-enter the room. Pressing the switch turns the lights off and temporarily disables the occupancy detection in the sensor. After a short exit time delay, the occupancy detection reactivates and monitors for an additional grace period. If no occupancy is detected, the zone will remain in Automatic On operation. If occupancy is detected, the zone will go to a Permanent Off mode, requiring the switch to be pressed again in order to turn the lights on and restore the sensor to Automatic On operation.
PERMANENT OFF - Pressing the switch turns the lights and the sensor off. Lights will not come on until switch is pressed again.
SWITCH DISABLE - Prevents user from manually turning off the lights via the push-button. Button can still be utilized for programming.

OPTIONS

VANDAL-RESISTANT LENS (V)
• Ideal for high abuse or public areas, where occupants simply come and go
• Decreases detection range by 50%

INHIBIT PHOTOCELL (P)
• Auto set-point calibration
• Photocell prevents lights from turning on if adequate daylight is available, but does not turn lights off

347 VAC (347)
• Allows sensor to be powered from and switch 347 VAC
• Wall Plate Included

COLOR
• White, Ivory, Gray, Almond, Black
• Wall Plate Included

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant
• Operates down to -4º F(-20ºC)

ORDERING INFO   WSD PDT [LENS] [PHOTOCELL] [VOLTAGE] [COLOR] [TEMP/HUMIDITY]

LENS	PHOTOCELL	VOLTAGE	COLOR	TEMP/HUMIDITY
Blank = None	Blank = None	Blank = 120/277 VAC	WH = White	Blank = Standard
V = Vandal Resistant	P = Photocell	347 = 347 VAC	IV = Ivory	LT = Low Temp
			GY = Gray	
			AL = Almond	
			BK = Black	

COVERAGE PATTERN

WSD WALL SWITCH DECORATOR LENS W/ MICROPHONICS™

• Small motion (e.g. hand movements) detection up to 20 ft (6.10 m)
• Large motion (e.g. walking) detection up to 50 ft (15.24 m)
• Wall-to-Wall coverage
• Microphonics™ provides overlapping detection of human activity over the complete PIR coverage area
• Advanced filtering is utilized to prevent non-occupant noises from keeping the lights on
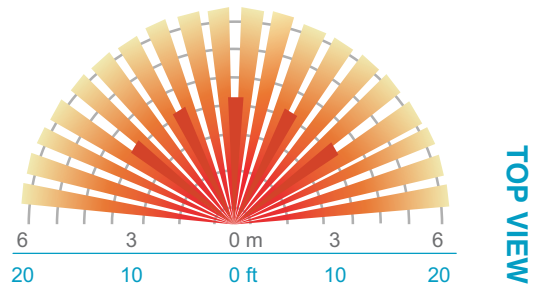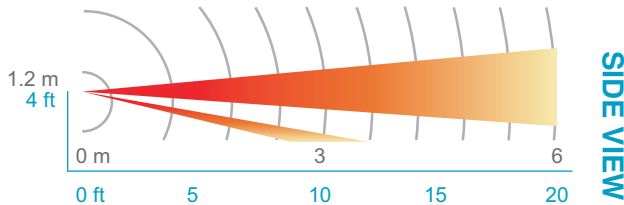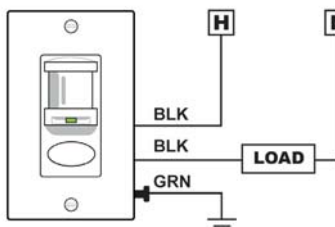

WIRING (DO NOT WIRE HOT)

STANDARD WIRING

BLACK* - Line Input
BLACK* - Load Output   } *BLACK wires can be reversed
GREEN SCREW - Ground (required connection)

347 VAC OPTION (347)

Black wires are replaced w/ Red wires
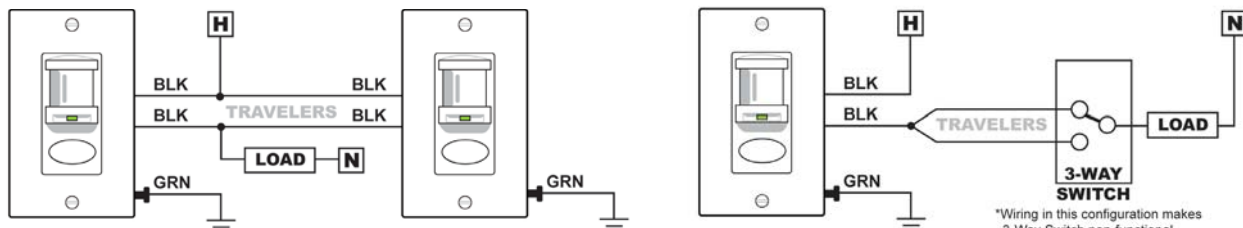
STANDARD CONFIGURATION

BI-LEVEL CONFIGURATION
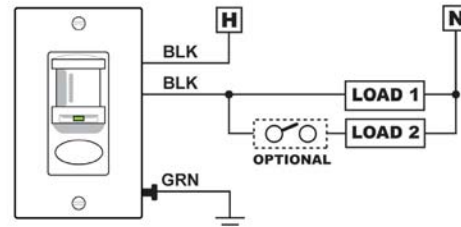
Note: Connection to Ground required for sensor to function

3-WAY WIRING CONFIGURATIONS

Travelers are used to wire sensors (or sensor and 3-way switch) in parallel.

*Wiring in this configuration makes 3-Way Switch non-functional

Note: Connection to Ground required for sensor to function

WARNING

Fire Hazard Caution: Maximum Lamps 1500 Watts, Type 347 VAC.
Attention: Risque d'incendie : Pauissance Maximales Des Lampes 1500 Watts, Type 347 VAC.
Warning: The units are intended to be installed by a qualified person with properly rated branch circuit protectors as per applicable local and national regulations (CEC, NEC).

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T065-004-P

sensor**switch** ®

CMRB 6

HIGH BAY 360º SENSOR
FIXTURE MOUNT BOX • LINE VOLTAGE • PASSIVE INFRARED (PIR)

SPECIFICATIONS

FEATURES
PIR Occupancy Detection
Up to 45 ft (13.72 m) Mounting
360º Coverage
Self-Contained Relay Switches
    Line Voltage Load
No Minimum Load Requirements
Push-Button Programmable
Adjustable Time Delay
100 Hr Lamp Burn-in Timer
Green LED Indicator

PHYSICAL SPECS
SIZE 3.63" H x 3.63" W x 1.50" D
    (9.22 cm x 9.22 cm x 3.81 cm)
WEIGHT 6 oz
MOUNTING 1/2" knockout
COLOR White

ELECTRICAL SPECS
MAXIMUM LOAD
    800 W @ 120 VAC
    1200 W @ 277 VAC
    1500 W @ 347 VAC
MINIMUM LOAD None
MOTOR LOAD 1/4 HP
FREQUENCY 50/60 Hz
DIMMING LOAD
    Sinks / Sources < 20mA;
    ~40 Ballasts @ .5mA each

ENVIRONMENTAL SPECS
OPERATING TEMP
    14º to 160º F (-10º to 71º C)
STORAGE TEMP
    -14º to 160º F (-26º to 71º C)
RELATIVE HUMIDITY
    20 to 90% non-condensing

OTHER
UL and CUL Listed
Title 24 Compliant
5 Year Warranty
Made in the U.S.A.

Designed for mounting heights of up to 45 ft (13.72 m), the **CMRB 6** High Bay 360º sensor provides Passive Infrared (PIR) occupancy detection over a 15-20 ft (4.57-6.10 m) radial coverage pattern that overlaps the areas lit by a typical high bay fixture. This line voltage sensor switches loads directly without the need for a power pack. The **CMRB 6** sensor mounts directly to the end of a lighting fixture through an extended 1/2 inch chase nipple, and is ideal for individual on/off control of T5/T8 fluorescent lighting. HID bi-level fixtures can also be controlled when the Start-to-High (SH) option is added to the **CMRB 6**. For multiple fixture control, multiple low voltage **CMB 6**, **CMB 50**, and/or **HMB 10** Series High Bay sensors with power packs are recommended. For lower mounting height applications, **CMRB 9** or **CMRB 10** Series sensors are recommended.

SENSOR OPERATION
The sensor detects changes in the infrared energy given off by occupants as they move within the field-of-view. When occupancy is detected, a self-contained relay switches the connected lighting load on. The sensor is line powered and can switch line voltage (see specifications). An internal timer, factory set at 15 minutes, keeps the lights on during brief periods of inactivity. This timer is push-button programmable from 30 seconds to 20 minutes, and is reset every time occupancy is re-detected. This state-of-the-art sensor requires no field calibration or sensitivity adjustments.

OPTIONS

START-TO-HIGH TIMER (SH)
• Upon power up sensor holds lights on and high for 20 min

OCCUPANCY CONTROLLED DIMMING (D)
• Provides dimming outputs to control 0-10 VDC dimmable ballasts
• Provides a second occupancy time-out period that enables the lights to go to a dim setting before turning off
• Adjustable max/min dim setting

PHOTOCELL (P)
• Ideal for high bay applications with skylights
• Photocell looks out through rear of sensor enclosure
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

DOWN LOOKING PHOTOCELL (PD)
• Ideal for high bay applications with daylight entering space from side windows or bay doors
• Photocell views down through sensor lens
• Auto set-point calibration
• Two selectable modes of operation
• On/Off mode: Photocell has full control during periods of occupancy
• Inhibit mode: Photocell can prevent lights from turning on if adequate daylight is available, but cannot turn lights off

347 VAC (347)
• Allows sensor to be powered from and switch 347 VAC

LOW TEMP/HIGH HUMIDITY (LT)
• Sensor is corrosion resistant to moisture
• Operates down to -40º F/C

ORDERING INFO   CMRB 6 [START-TO-HIGH] [DIMMING] [PHOTOCELL] [VOLTAGE] [TEMP/HUMIDITY]
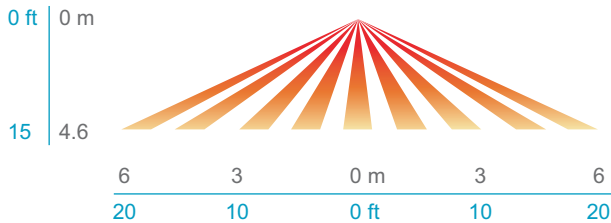
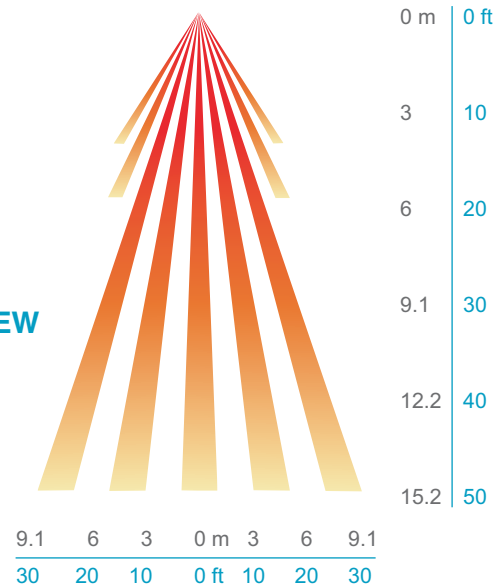| START-TO-HIGH	DIMMING	PHOTOCELL	VOLTAGE	TEMP/HUMIDITY
Blank = No STH SH = w/STH	Blank= None D = Occupancy Controlled Dimming	Blank= None P= Up Looking Photocell PD= Down Looking Photocell	Blank = 120/277 VAC 347 = 347 VAC	Blank = Standard LT = Low Temp

COVERAGE PATTERN

6 HIGH BAY 360º LENS

- Best choice for 15 to 45 ft (4.57 to 13.72 m) mounting heights
- 15 to 20 ft (4.57 to 6.10 m) radial coverage overlaps area lit by a typical high bay fixture
- Excellent detction of large motion (e.g. **walking**) up to a 35 ft (10.76 m) mounting height
- Excellent detection of extra large motion (e.g. **forklifts**) up to a 45 ft (13.72 m) mounting height

LOW VIEW

HIGH VIEW

0 m	0 ft
3	10
6	20
9.1	30
12.2	40
15.2	50

LOW VIEW axis:
0 ft	0 m
15	4.6

6	3	0 m	3	6
20	10	0 ft	10	20

HIGH VIEW axis:
9.1	6	3	0 m	3	6	9.1
30	20	10	0 ft	10	20	30

WIRING (DO NOT WIRE HOT)

STANDARD WIRING

BLACK* - Line Input
BLACK* - Load Output } *BLACK wires can be reversed
WHITE - Neutral

347 VAC OPTION (347)
Black wires are replaced w/ Red wires

INITIAL POWER UP (3 MINUTE WARM-UP)
The sensor's relay is shipped in a latched closed position so the lights will come on upon initial power-up. After a 1-3 minute warm-up period, the sensor will begin to time out. If the lights do not immediately turn on (initial installation only) the latching relay opened during shipment and will close after warm-up period is over.
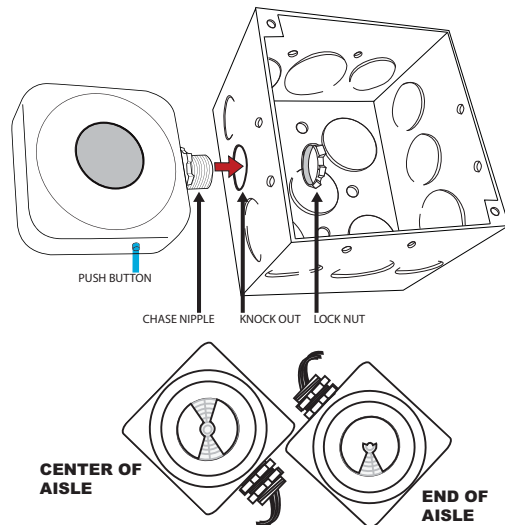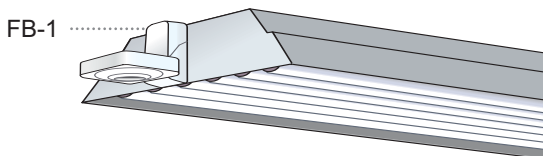
H   N

BLK
BLK
WHT   LOAD
VIO (+)
GRY (-)   [D] Dimming Option
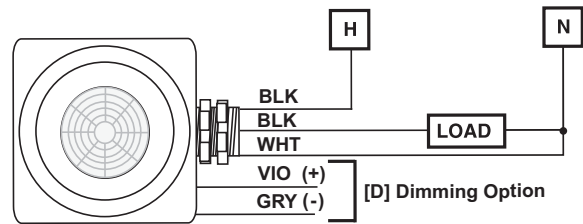
DIMMING OPTION (D)
VIOLET - Connect to Violet control wire from 0-10 VDC dimmable ballast
GRAY - Connect to Gray common wire from ballast

INSTALLATION

- Sensor mounts through a 1/2" knockout hole to a fixture or junction box.
- A label kit is included to mask off half of the sensor's coverage pattern for end of aisle, or trim the side viewing to create a rectangular pattern for center of aisle.
- If the sensor's field-of-view is partially blocked by the fixture housing, the FB-1 Fixture Bracket (not included) can be used to lower the sensor down to a level where its view is not impaired.
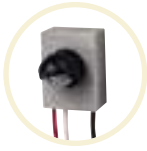
FB-1

PUSH BUTTON

CHASE NIPPLE   KNOCK OUT   LOCK NUT

CENTER OF AISLE

END OF AISLE

PROGRAMMING
Refer to included instruction card for default settings and directions on programming the sensor via the push-button.

sensorswitch®

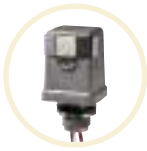An **Acuity**Brands Company

T018-005-P

INTERMATIC®
PHOTO CONTROLS

Fixed Position Mounting	K4021C	K4023C	K4024	K4022	K4033	K4035*	K4321C
Watts Tungsten	1800	3100-4150	3100	3600	4150	1000	1800
VA Ballast	1000	1700-2300	1700	2000	2300	4000	1000
AMPS Tungsten	15	15	15	15	15	15	15
AMPS Ballast	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Volts	120	208-277	208	240	277	480	120

*Not UL or CSA Certified

Stem Mounting	K4121C	K4121M	K4124	K4122	K4123C	K4123M	K4133	K4135	K4136M	K4141C*
Watts Tungsten	1800	2000	3100	3600	3100-4150	2000-2660	4150	1000	2000-4625	3000
VA Ballast	1000	1800	1700	2000	1700-2300	1800	2300	4000	1800	3000
AMPS Tungsten	15	16.7	15	15	15	9.6	15	15	16.7	25
AMPS Ballast	8.3	15	8.3	8.3	8.3	8.6	8.3	8.3	8.6	25
Volts	120	120	208	240	208-277	208-277	277	480	120-277	120

*Not UL or CSA Certified

Stem and Swivel Mounting	K4221C	K4224	K4222	K4223C	K4233	K4235	K4236C	K4251	K4253
Watts Tungsten	1800	3100	3600	3100-4150	4100	1000	1800-4150	1800	2000
VA Ballast	1000	1700	2000	1700-2300	2300	4000	1000-2300	1000	1800
AMPS Tungsten	15	15	15	15	15	15	15	15	16.7
AMPS Ballast	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	15
Volts	120	208	240	208-277	277	480	120/208-277	120	208-277

Twist Lock Mounting	K4521	K4524*	K4522	K4533*	K4533*
Watts Tungsten	1800	3100	3600	4100	1000
VA Ballast	1000	1700	2000	2300	4000
AMPS Tungsten	15	15	15	15	15
AMPS Ballast	8.3	8.3	8.3	8.3	8.3
Volts	120	208	240	277	480

*Not CSA Certified
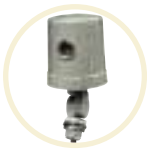
Relay Type	K1121	K1122	K1221	K1222
Watts Tungsten	1800	1800	1800	1800
VA Ballast	1800	1800	1800	1800
Volts	105-130	210-240	105-130	210-240

Low Cost Twist Lock	LC4521C	LC4523	LC4535	LC4536C	LC4521LA	LC4523LA	LC4535LA	LC4536LAC
Watts Tungsten	1000	1700-2300	7200	1000-2300	1000	1700-2300	1000	1000-2300
VA Ballast	1000	1700-2300	4000	1000-2300	1000	1700-2300	4000	1000-2300
AMPS Tungsten	15	15	15	15	15	15	15	15
Volts	120	208-277	480	120-277	120	208-277	480	120-277

Solid State Fixed Position	K4536SS	K4536SST
Watts Tungsten	1000	1000
VA Ballast	1800	1800
AMPS Tungsten	9.6	9.6
Volts	105-305	105-305

Intermatic Time clocks

24 Hour Dial

Designed for industrial, commercial and residential applications. Highest HP ratings in the industry for loads up to 40 amps, providing direct 24 hr. control of most loads. Provides 1 to 12 "ON/OFF" operations each day with minimum ON/OFF times of 1 hour. All models equipped with one "ON" and one "OFF" tripper.

Specifications

- **Case** – Drawn steel 7-3/4" (19.7 cm) H, 5" (12.7 cm) W, 3" (7.6 cm) D in gray finish. Spring hasp, with hole for lock, holds permanently attached, side hinged door closed. Three mounting holes on back plus handy box mounting holes.

- **Knockouts** – Combination 1/2"–3/4" nominal knockouts, one on back and each side of case and two on bottom.

- **Optional Enclosures** – See Time Switch Cases page for optional enclosures.

- **Special Voltages and Cycles** – See Time Switch Motors page for available motors.

- **Switch Rating** – Each Pole; 40 Amp Resistive, 120-480 VAC; 40 Amp Tungsten, inductive or 1000 VA pilot duty, 120-277 VAC; 2 HP (24 FLA) 120 VAC; 5 HP (28 FLA) 240 VAC single phase; 7-1/2 HP (28 FLA) 208 VAC three phase; 10 HP (28 FLA) 240 VAC three phase.