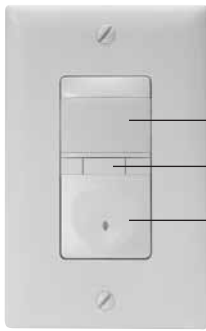


Please read all instructions before installing

RW DU500 Multi-way Dimming Wall Switch Vacancy Sensor with Manual ON/OFF/DIM



Lens
Air Gap Isolation Switch
Lighted Switch
ON/OFF/DIM button

SPECIFICATIONS

Voltage	120VAC, 60Hz
Load (Single Pole Circuit)	25-500 Watt
Compatibility	Incandescent
Time Delay Adjustment	15 seconds to 30 minutes
Light Level Adjustment	10 fc to 150 fc
Environment	Residential Indoor use only
Operating Temperature	32° to 104°F (0° to 40°C)
Humidity	95% RH, non-condensing
Electrical Supply Wire Requirement	
Minimum temperature rating	75°C (167°F)
Tools Needed	Insulated Screwdriver, Wire Strippers

Pass & Seymour



Syracuse, NY 13221-4822

DESCRIPTION AND OPERATION

The RW DU500 Multi-way Dimming Wall Switch Vacancy Sensor is designed to replace a standard single pole or multi-way (3-way, 4-way) switch or dimmer. It is ideal for living and dining rooms, family rooms, bedrooms, bathrooms and any other indoor area in a residential space where occupancy sensor-based manual ON/OFF and Dimming control is desirable.

Like a standard switch, you press the ON/OFF/DIM button to turn the dimmable lighting load ON and OFF. Unlike a standard switch, the RW DU500 automatically turns OFF the controlled load after the coverage area has been vacant for a period of time (Time Delay). If motion is detected within 30 seconds after it automatically turns OFF, the RW DU500 automatically turns the load back ON. Like a standard dimmer, once the lighting load is ON, you can dim it UP or DOWN by pushing and holding the ON/OFF/DIM button. When you push the ON/OFF/DIM button to turn the dimmable load ON, the RW DU500 recalls the last used dimming level.

While the sensor is factory preset as a Vacancy Sensor with manual ON operation, it can be adjusted to work as an Occupancy Sensor that turns the controlled load ON automatically upon detection of occupancy in the area.

The RW DU500 can be wired with up to 3 additional RW DU500s for multi-way Manual/Auto -ON/OFF of one or several loads (up to one load connected to each RW DU500). It can also be wired to up to 4 TM870STM single pole momentary wall switches for multi-way Manual-ON/OFF Automatic-OFF control of one load.

Lighted Switch

To help you locate the RW DU500 in a dark room, the green LED illuminates the ON/OFF/DIM button while the controlled load is OFF. When the controlled load is ON, the LED is OFF.

The lighted switch ON/OFF/DIM button can be used to manually turn ON and OFF the lighting load and to dim it UP and DOWN.

To turn the load ON, tap firmly on the ON/OFF/DIM button once. The green LED turns OFF and the load turns ON to the last used dimming level. The lighting load may or may not appear to be ON depending on how low the lights were set the last time they were dimmed.

Once the load has been turned ON, push and hold the ON/OFF/DIM button to dim the lights UP or DOWN. To reverse the dimming direction momentarily release the ON/OFF/DIM button, then push and hold it again. This feature will allow you to reach the desired dimming level quicker.

OPERATING MODES

For multi-way operation of two or more RW DU500s, it is recommended to set the Operating Mode to be the same in all sensors related to the same load. This recommendation will ease understanding of the multi-way control as well as trouble shooting. There are two operating modes to select from:

MODE 1 Vacancy sensor (Manual-ON/OFF, Auto-OFF): The user must press (tap) the ON/OFF/DIM button to turn the load ON. The RW DU500 keeps the load ON until no motion is detected by any of the related RW DU500s for the time delay period. There is also a 30 second reset delay after the automatic shut-off. If motion is detected during this time, the sensor turns the load back on automatically. After the 30 second reset delay has elapsed, the ON/OFF/DIM button must be pressed to turn ON the load.

MODE 2 Occupancy sensor (Auto-ON/OFF with manual control and reset to auto after 5 minutes of vacancy): The load turns ON and OFF automatically based on occupancy detection. Once turned ON the RW DU500 keeps the load ON until no motion is detected by any of the related RW DU500s for the time delay period. If the load is turned OFF manually, automatic-ON is re-enabled when no motion is detected for 5 minutes. This prevents the load from being turned on after it was deliberately turned OFF.

Time Delay

The time delay can be selected by the user during set up. It can be adjusted to any of these fixed values:15 seconds/5 minutes/15 minutes/30 minutes. It is recommended to set all of the sensors related to the same load to the same time delay to ease understanding of the multi-way control operation as well as trouble shooting. For additional information on how to adjust it, please read the SENSOR ADJUSTMENT & PROGRAMMING section of this installation manual.

Light Level

When the operating mode is set for occupancy sensor, Mode 2 (Auto-ON) this feature prevents the sensor from automatically turning the lights ON if there is already enough light in the area.

In a multi-way application with various RW DU500s, each sensor monitors the light level at its location. If any sensor related to the load detects motion AND the measured light level in that sensor's area is lower than its Light Level setting, the load turns ON. To adjust the light level, please read the SENSOR ADJUSTMENT & PROGRAMMING section of this installation manual.

Coverage Area

The RW DU500 has a maximum range of 180 degrees and a coverage area of 600 sq. feet (56 sq. meters). The sensor must have a clear and unobstructed view of the coverage area. Objects blocking the sensor's lens may prevent detection thereby causing the light to turn OFF even though someone is in the area.

Windows, glass doors, and other transparent barriers will obstruct the sensor's view and prevent detection.

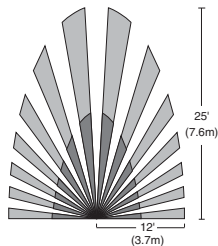


Fig. 1: Sensor Coverage Area

INSTALLATION & WIRING

These instructions describe single pole, 3-way and multi-way circuit applications.

If you are unable to clearly identify some or all of the wires identified in step 2 of the instructions, you should consult with a qualified electrician.

Steps 4a, 4b, and 4c describe each circuit application.

For information about other applications, consult technical support or the Pass & Seymour website.

CAUTION — WARNING
To reduce the risk of overheating and possible damage to other equipment, do not install to control a receptacle, a motor-operated appliance, a fluorescent lighting fixture, or a transformer-supplied appliance.

Disconnect power to the wall switch box by turning OFF the circuit breaker or removing the fuse for the circuit before installing the RW DU500, replacing lamps, or doing any electrical work.

1. Prepare the switch box.

After the power is turned OFF at the circuit breaker box, remove the existing wall plate and mounting screws. Pull the old switch out from the wall box.

2. Identify the type of circuit.

You may connect the RW DU500 to a single pole (see Fig. 2) or 3-way circuit (see Fig. 2a).

In a 3-way circuit, two traveler wires connect to both switches. Another wire provides power from the circuit box to one of the switches. A wire connects from one switch to the load. A ground wire may also be connected to a ground terminal on the old switches. A neutral wire should also be present in both wall boxes.

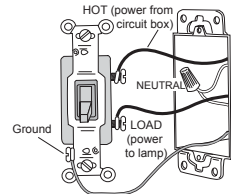


Fig. 2: Typical Single Pole Switch

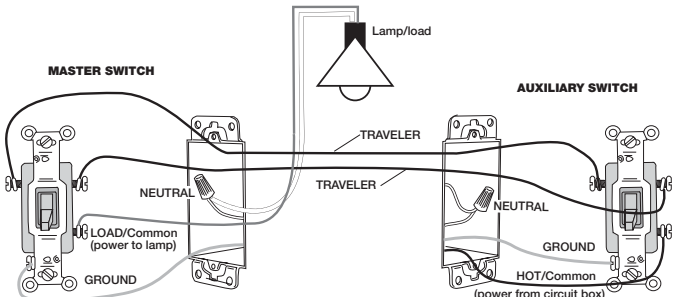


Fig. 2a: Typical 3-way Switch Wiring

3. Prepare the Wires.

Tag the wires currently connected to the existing switch so that they can be identified later. Disconnect the wires. Make sure the insulation is stripped off of the wires to expose their copper cores to the length indicated by the "Strip Gage," in Fig. 3. (approx. 1/2 inch).

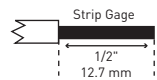


Fig. 3: Wire Stripping

For your safety: Connecting a proper ground to the sensor provides protection against electrical shock in the event of certain fault conditions. If a proper ground is not available, consult with a qualified electrician before continuing installation.

4a: Single pole wiring:

Twist the existing wires together with the wire leads on the RW DU500 sensor as indicated below. Cap them securely using the wire nuts provided (See Fig 4a).

- Connect the green or non-insulated (copper) GROUND wire from the circuit to the green wire on the RW DU500.

- Connect the NEUTRAL wire from the circuit and from the lamp (LOAD) to the white wire on the RW DU500.

- Connect the power wire from the circuit box (HOT) to the black wire on the RW DU500.

- Connect the power wire to the lamp (LOAD) to the red wire on the RW DU500.

- Cap the yellow wire on the RW DU500. It is not used in single pole applications.

4b: 3-way wiring using two RW DU500s:

Twist the existing wires together with the wire leads on the RW DU500 sensors as indicated below. Cap them securely using wire nuts provided. (See Fig. 4b)

- Connect the green or non-insulated (copper) GROUND wire from the circuit to the green wire on the RW DU500.

- Connect the NEUTRAL wire from the circuit and from the lamp (LOAD) to the white wire on the master RW DU500.

The term "master" designates the RW DU500 that connects to the load.

- Connect the NEUTRAL wire from the circuit in the other wiring box to the white wire on the auxiliary RW DU500.

- Connect the power wire from the circuit box (HOT) to the black wire on the auxiliary RW DU500 and to the TRAVELER 1 wire.

- Connect the TRAVELER 1 wire from the black wire of the auxiliary RW DU500 to the black wire of the master RW DU500.

- Connect the lamp power (LOAD) to the red wire on the master RW DU500.

- Cap the red wire on the auxiliary RW DU500.

- Connect the TRAVELER 2 wire coming from the yellow wire of another RW DU500 to the yellow wire of the RW DU500 that you are wiring.

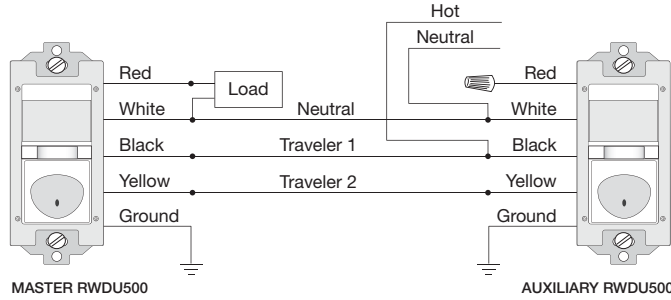


Fig. 4b: Reference wiring diagram, 3-way using two RW DU500s

4c: Multi-way wiring using one RWDU500 and up to four TM870STMs:

One RWDU500 can be connected with up to 4 TM870STM single pole momentary wall switches for multi-way Manual-ON/OFF control of one single load. **The RWDU500 must be installed in the wiring wall box that connects to the load.**

Connect the existing wires to the wire leads on the RWDU500 sensor as indicated below (See Fig. 4c). Cap them securely using wire nuts provided.

- Connect the green or non-insulated (copper) GROUND wire from the circuit to the green wire on the RWDU500.
- Connect the NEUTRAL wire from the circuit and from the lamp (LOAD) to the white wire on the RWDU500.
- Connect the power wire from the circuit box (HOT) to one terminal on each TM870STM single pole momentary wall switch and to the TRAVELER 1 wire.
- Connect the TRAVELER 1 wire coming from each TM870STM wiring box to the black wire of the RWDU500.
- Connect the lamp power (LOAD) to the red wire on the RWDU500.
- Connect the TRAVELER 2 wire to the other side of each TM870STM single pole momentary wall switch and to the yellow wire of the RWDU500.

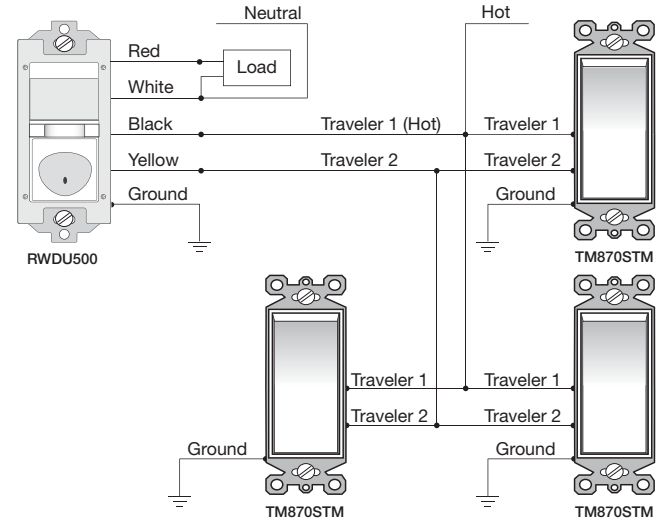


Fig. 4c: Multi-way wiring using one RWDU500 and three TM870STMs

5. Put the RWDU500s (and TM870STMs if applicable) into their respective wall boxes.
Position them with the lens positioned above the ON/OFF/DIM button (lens at top, ON/OFF/DIM button at bottom). Secure to the wall box with the screws provided.
6. Make any necessary adjustments.
See the SENSOR ADJUSTMENT & PROGRAMMING section for information.
7. Attach the new cover plate.
Secure it with the screws provided.
8. Restore power to the circuit.
Turn on the breaker or replace the fuse.

INITIAL POWER-UP DELAY & CALIBRATION

There is an initial warm-up and calibration period the first time power is applied to the unit, after a power failure lasting more than 5 minutes and after the dimming load is replaced. If the sensor is in Mode 2, (automatic-ON) it may take up to 1 minute before the lights turn ON. However, the lights can be turned ON/ OFF and dimmed manually by pressing the ON/OFF/DIM button at any time when power is supplied to the unit.

Load Calibration: The RWDU500 calibrates its dimming range to the load's wattage rating by briefly dimming the load up and down from its minimum output (approx. 10%) to its maximum.

SENSOR ADJUSTMENT & PROGRAMMING

To adjust the RWDU500, you use controls located under the ON/OFF/DIM button. The wall switch cover plate must be removed to gain access to the mode button and adjustment dials under the ON/OFF/DIM button.

Note: For multi-way operation of two or more RWDU500s, it is recommended to set to the same values the Operating Mode and the Time Delay adjustments in all sensors related to the same load.

1. Firmly grasp the side edges of the Lock Bar and gently pull it away from the switch face until it clicks. Do NOT attempt to pull the Lock Bar off of the switch!
2. Firmly grasp the side edges of the ON/OFF/DIM button. Slide the button downward approximately 1/2 inch to expose the mode button and adjustment dials.

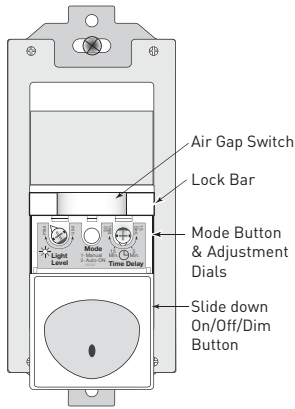


Fig. 5: Sensor Adjustment Controls

Setting up the Operating Mode

Select the operating mode by pressing the Mode button. The green LED behind the switch button blinks to indicate the selected mode:

- One blink indicates Mode 1 (Vacancy Sensor Operation), Manual-ON/OFF, Auto-OFF
- Two blinks indicate Mode 2 (Occupancy Sensor Operation), Auto-ON/OFF with manual control and reset to auto (after 5 minutes of vacancy).

To change the operating mode, press the Mode button. The LED blinks to indicate the selected mode. It repeats the selected mode three times. After that, the unit operates in the indicated mode.

Adjusting the Time Delay

Turn the right dial counter-clockwise to reduce the amount of time the lights will remain on after the last motion detection (minimum = 15 seconds). Turn the same dial clockwise to increase this time delay (maximum = 30 minutes). You can only select the following values: 15 seconds/5 minutes/15 minutes/30 minutes.

Warning: Do not overturn the Time Delay adjustment dial!

Adjusting the Light Level

This feature is factory set at maximum, so that even the brightest light will not prevent the sensor from turning the load ON when it detects occupancy. If this feature is not needed, leave the light level at maximum, fully clockwise. The light level must be adjusted when lights would normally be turned OFF because there is enough natural illumination. Each RWDU500 may have a different light level setting.

1. Set all RWDU500s to Mode 1 (Manual-ON) - except for the one that you're adjusting.
Set the RWDU500 you're adjusting so that it is in Mode 2 (Automatic-ON).
2. Reduce the time delay to 15 seconds.
3. Adjust the Light Level dial to minimum (fully counter-clockwise) on the unit that you're adjusting. Move out of the coverage area. Let the sensor time out so lights are OFF and then wait 30 seconds more.
4. Without casting a shadow on the sensor, enter the area. The lights should remain OFF. Adjust the Light Level dial clockwise in small increments. After each adjustment, wait 5-10 seconds to see if the lights turn ON.
Continue this procedure until the lights turn ON. At this setting the light will not turn ON automatically with occupancy if the light level measured at this sensor is above the current natural illumination.
5. Repeat the process (beginning with step 1) for each RWDU500 in your multi-way configuration until the Light Level has been adjusted properly in all of them.
6. When you have finished adjusting the Light Level of all the RWDU500s, return them all to Mode 2.
7. Reset the time delay to the desired setting in all units.

Warning: Do not overturn the Light Level adjustment dial!

TEST MODE

To test the detection coverage:

1. Press and hold the ON/OFF/DIM button. After 10 seconds the lighted switch turns off. The load turns ON if it was not already ON. The sensor is now in a TEST mode that lasts 5 minutes. (You can end the TEST mode sooner by pressing the ON/OFF/DIM button for another 10 seconds).
During the TEST mode, the controlled load turns ON for 5 seconds each time the sensor that initiated the TEST mode detects occupancy.
2. Move out of the coverage area or stand very still. The controlled load turns OFF after 5 seconds if no motion is detected.
3. Move into the coverage area for the unit that initiated the TEST mode. The controlled load turns ON for 5 seconds each time the sensor detects motion. After 5 seconds expire without motion detection, the load turns OFF. The controlled load turns ON automatically with the next motion detection and stays ON for 5 seconds.
4. Repeat as necessary to ensure that the desired coverage areas are within detection range.

You can do this test for each RWDU500 in your multi-way configuration. So that you can determine the actual coverage area for each multi-way switch individually, only the RWDU500 that is in TEST mode will control the load.

REPLACING LAMPS

When replacing a bulb in a lamp connected to an RWDU500, use the Air Gap Isolation feature for safety. If you have more than one RWDU500 controlling one or various loads in a multi-way wiring configuration, apply the instructions below to all RWDU500s for safety.

1. Push in the Air Gap Switch shown in Figure 5 so that it clicks and locks into a depressed position below the surface of the rest of the RWDU500. This engages the Air Gap, which stops electricity from flowing to the connected load.
2. After replacing the bulb(s), press the Air Gap Switch so that it returns to a position that is flush with the surface of the rest of the RWDU500. This allows the dimming sensor to control the lighting load correctly.
3. The RWDU500 then calibrates its dimming range to the load's wattage rating by briefly dimming the load up and down from its minimum output (approx. 10%) to its maximum.

TROUBLESHOOTING

Check the position of the Air Gap Switch on all RWDU500s before beginning troubleshooting.

Lighted switch is OFF, no load response to pressing ON/OFF/DIM button(s) or any of the TM870STM momentary wall switches (if applicable):

- Make certain that the circuit breaker is on and functioning.

Lighted switch is ON, no load response to pressing ON/OFF/DIM button(s) or any of the TM870STM momentary wall switches (if applicable):

- Check the controlled dimmable lighting load(s) (light bulbs). Make sure that the load(s) connected to the RWDU500s is (are) between 25- 500 watts.
- The lighting load(s) may not appear to be ON if the last used dimming level was very low. To verify if this is the case, firmly tap the ON/OFF/DIM button one time. The green LED should turn off. Next, press and hold the ON/OFF/ DIM button to turn UP the lighting level. If the lights do not get brighter, call technical support.

Load will not turn ON automatically when the area is occupied and the sensors are in Mode 2 (lighted switch is ON):

- Press ON/OFF/DIM button(s). If the load turns ON, check the Light Level setting. The light level can prevent the sensor from turning ON the load automatically. Make sure the sensor lenses are not blocked and that you are within the coverage area of at least one sensor.
- If the load does not turn ON when you press the ON/OFF/DIM button(s), check the dimmable lighting load(s). Make sure that the load connected to the RWDU500(s) is between 25-500 watts.
- The lighting load may not appear to be ON if the last used dimming level was very low. To verify if this is the case, firmly tap any ON/OFF/DIM button one time. The green LED should turn off. Next, press and hold the same ON/OFF/ DIM button to turn UP the lighting level. If the lights do not get brighter, call technical support.
- If the load(s) does (do) not turn ON when you press the ON/OFF/DIM button, check the light bulb.

Load will not turn OFF automatically:

- Press the ON/OFF/DIM button. If the controlled load turns OFF, go to next step.
- The time delay can be set from 15 seconds to 30 minutes. Check the time delay setting for each RWDU500 in your multi-way configuration. Ensure that all RWDU500s have the same time delay setting. Ensure that there is no movement within any of the sensors' view for the set time period. Hot air currents and heat radiant devices can cause false detection. Make sure the sensor is at least 6 feet (2 meters) away from devices that are a significant heat source (e.g., heater, heater vent, high wattage light bulb).

If load does not respond properly after following troubleshooting, turn OFF power to the circuit then check wire connections or call technical support.

WARRANTY INFORMATION

Pass & Seymour/Legrand warrants its products to be free of defects in materials and workmanship for a period of five (5) years. There are no obligations or liabilities on the part of Pass & Seymour/Legrand for consequential damages arising out of, or in connection with, the use or performance of this product or other indirect damages with respect to loss of property, revenue or profit, or cost of removal, installation or reinstallation.

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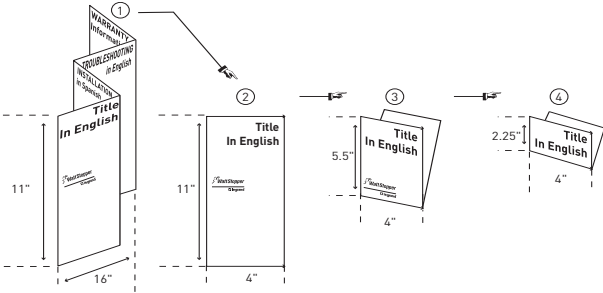
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MATERIAL: White 16lb {60g/m sq}
 Uncoated, prefer recycled stock

FLAT (cut) SIZE: 16"W x 11" H

FOLDED SIZE: 4"W x 2.75" H



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