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<th>Product Description</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>Dual Tech Ceiling Occupancy / Vacancy Sensor</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>PIR Ceiling Occupancy / Vacancy Sensor</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>Dual Tech Wall Occupancy / Vacancy Sensor</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>PIR Wall Occupancy / Vacancy Sensor</td>
<td>119</td>
<td></td>
</tr>
</tbody>
</table>

## Diversa Sensors (con’t)

**Low Voltage**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIR Ceiling Occupancy / Vacancy Sensor</td>
<td>121</td>
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<td>Dual Tech Ceiling Occupancy / Vacancy Sensor (Retrofit)</td>
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<td>Dual Tech Ceiling Occupancy / Vacancy Sensor</td>
<td>128</td>
</tr>
<tr>
<td>Dual Tech Wall Occupancy / Vacancy Sensor</td>
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<td>PIR Wall Occupancy / Vacancy Sensor</td>
<td>136</td>
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<td>Dual Tech Corner Occupancy / Vacancy Sensor</td>
<td>138</td>
</tr>
<tr>
<td>Dual Tech Ceiling Vacancy Sensor</td>
<td>142</td>
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</tbody>
</table>

## Power Packs

<table>
<thead>
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<td>Power Pack 1-Pole</td>
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<tr>
<td>Power Pack Panel</td>
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<tr>
<td>Power Pack Room Panel</td>
<td>151</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Product Description</th>
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</thead>
<tbody>
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<td>153</td>
</tr>
<tr>
<td>2-Channel x 2000W Forward Phase Dimmer</td>
<td>156</td>
</tr>
<tr>
<td>4-Channel x 1000W Forward Phase Dimmer</td>
<td>159</td>
</tr>
<tr>
<td>4-Channel x 300W Reverse Phase Dimmer</td>
<td>162</td>
</tr>
</tbody>
</table>

## Hardwired Components

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<thead>
<tr>
<th>Product Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LitePak 2 Panels</td>
<td>165</td>
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<tr>
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<td>167</td>
</tr>
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<td>Switch Station Dimming</td>
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<td>Switch Station Standard</td>
<td>170</td>
</tr>
<tr>
<td>Exterior Photo Sensor</td>
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</tr>
<tr>
<td>Interior Photo Sensor</td>
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</tr>
</tbody>
</table>

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<th>Product Description</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
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<td>174</td>
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</tr>
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<td>Emergency Power Transfer Switch</td>
<td>176</td>
</tr>
</tbody>
</table>
Dialog Lighting Control Panels
Prewired Central and Remote Relay Panels (WLCP Panels)

Prewired central and remote relay panels (WLCP panels) consist of enclosures, relays and control electronics to provide a complete panelized solution. WLCP panels communicate digitally using the Dialog 2-wire network.

Central panels include a Lighting Control Unit which manages all devices in a system of 256 relays and 256 dimmers as well as a hand-held switch/sensor setting unit while remote panels do not.

Standard Components:
- PWEx Enclosure
- WR-4075 Transformer
- WLC-3150 Lighting Control Unit
- WR-6161 Relay
- WRD-3408z Relay Driver

Optional Components:
- WDB-3314 0-10v Driver
- WCI-3928 Contact Input Unit
- WNG-3131 BACnet Gateway
- UL924 Emergency Bypass Unit

* refer to individual product cutsheets for wiring details and dimensions

Central Panels

<table>
<thead>
<tr>
<th>Part Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLCP-CP00</td>
<td>Central Dialog Central Panel - No Relays</td>
</tr>
<tr>
<td>WLCP-CP24/24</td>
<td>24 Capacity Dialog Central Panel (w/ 24 Relays)</td>
</tr>
<tr>
<td>WLCP-CP24/16</td>
<td>24 Capacity Dialog Central Panel (w/ 16 Relays)</td>
</tr>
<tr>
<td>WLCP-CP24/8</td>
<td>24 Capacity Dialog Central Panel (w/ 8 Relays)</td>
</tr>
<tr>
<td>WLCP-CP32/32</td>
<td>32 Capacity Dialog Central Panel (w/ 32 Relays)</td>
</tr>
<tr>
<td>WLCP-CP32/24</td>
<td>32 Capacity Dialog Central Panel (w/ 24 Relays)</td>
</tr>
<tr>
<td>WLCP-CP32/16</td>
<td>32 Capacity Dialog Central Panel (w/ 16 Relays)</td>
</tr>
<tr>
<td>WLCP-CP48/48</td>
<td>48 Capacity Dialog Central Panel (w/ 48 Relays)</td>
</tr>
<tr>
<td>WLCP-CP48/40</td>
<td>48 Capacity Dialog Central Panel (w/ 40 relays)</td>
</tr>
<tr>
<td>WLCP-CP48/32</td>
<td>48 Capacity Dialog Central Panel (w/ 32 relays)</td>
</tr>
<tr>
<td>WLCP-CP48/24</td>
<td>48 Capacity Dialog Central Panel (w/ 24 relays)</td>
</tr>
<tr>
<td>WLCP-CP72/72</td>
<td>72 Capacity Dialog Central Panel (w/ 72 Relays)</td>
</tr>
<tr>
<td>WLCP-CP72/48</td>
<td>72 Capacity Dialog Central Panel (w/ 48 relays)</td>
</tr>
<tr>
<td>WLCP-CP72/40</td>
<td>72 Capacity Dialog Central Panel (w/ 40 relays)</td>
</tr>
<tr>
<td>WLCP-CP72/32</td>
<td>72 Capacity Dialog Central Panel (w/ 32 relays)</td>
</tr>
</tbody>
</table>

Remote Panels

<table>
<thead>
<tr>
<th>Part Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLC-RP08/08</td>
<td>8 Capacity Dialog Remote Panel (w/ 8 Relays)</td>
</tr>
<tr>
<td>WLCP-RP24/24</td>
<td>24 Capacity Dialog Remote Panel (w/ 24 Relays)</td>
</tr>
<tr>
<td>WLCP-RP24/16</td>
<td>24 Capacity Dialog Remote Panel (w/ 16 Relays)</td>
</tr>
<tr>
<td>WLCP-RP24/8</td>
<td>24 Capacity Dialog Remote Panel (w/ 8 Relays)</td>
</tr>
<tr>
<td>WLCP-RP32/32</td>
<td>32 Capacity Dialog Remote Panel (w/ 32 Relays)</td>
</tr>
<tr>
<td>WLCP-RP32/24</td>
<td>32 Capacity Dialog Remote Panel (w/ 24 relays)</td>
</tr>
<tr>
<td>WLCP-RP32/16</td>
<td>32 Capacity Dialog Remote Panel (w/ 16 relays)</td>
</tr>
<tr>
<td>WLCP-RP48/48</td>
<td>48 Capacity Dialog Remote Panel (w/ 48 relays)</td>
</tr>
<tr>
<td>WLCP-RP48/40</td>
<td>48 Capacity Dialog Remote Panel (w/ 40 relays)</td>
</tr>
<tr>
<td>WLCP-RP48/32</td>
<td>48 Capacity Dialog Remote Panel (w/ 32 relays)</td>
</tr>
<tr>
<td>WLCP-RP48/24</td>
<td>48 Capacity Dialog Remote Panel (w/ 24 relays)</td>
</tr>
<tr>
<td>WLCP-RP72/72</td>
<td>72 Capacity Dialog Remote Panel (w/ 72 relays)</td>
</tr>
<tr>
<td>WLCP-RP72/48</td>
<td>72 Capacity Dialog Remote Panel (w/ 48 relays)</td>
</tr>
<tr>
<td>WLCP-RP72/40</td>
<td>72 Capacity Dialog Remote Panel (w/ 40 relays)</td>
</tr>
<tr>
<td>WLCP-RP72/32</td>
<td>72 Capacity Dialog Remote Panel (w/ 32 relays)</td>
</tr>
</tbody>
</table>
WLCP Panels: Exploded View

Hinged Covers
Surface (S3) or Flush (F4). Install right side up or upside down for right-to-left or left-to-right door. The inner trim of the hinged cover covers over all of the line voltage wiring. Access to the relay’s manual control levers is in the low voltage compartment.

Screw-on Covers
Surface (S1) or Flush (F2)

Relay Interior
Relays mount to HID snap rails. Barriers are located to provide the line / low voltage division. Transformers mount to 1/2” knock outs located in the barrier. Control components are mounted to DIN rail in center of interior. Pre-assembled PWEx panels will have panel schedules completed according to information provided and all low voltage control connections pre-wired.

Stacking Panels
Panels of equal dimension on a side have matching KO pattern to provide easy stacking.

Drip Shields
Optional, surface cover panels only.

INSTALLATION & ASSEMBLY

WLCP series relay panels for Douglas HID relays are supplied with a separate interior. All of the components and barriers are mounted to the interior.

WLCP panels are primarily intended for projects where the interior is factory pre-assembled. To install the relay panel the following sequence is recommended:

1) Mount the empty enclosure onto the wall and pull wires. It is recommended that all (or most) of the wires be pulled prior to installing the interior. This will prevent component damage from the wire pulling operation.

2) Relay line voltage terminals are sized for a maximum of 12AWG wire.
   For low voltage wiring 18AWG solid is recommended.

3) Once the wires have been pulled, install the interior and bolt it into place. Make line connections to relays according to the panel schedule provided. If there is no schedule, identify circuits on a blank schedule.

4) To test circuit, turn circuit breaker off, use manual lever to turn relay on and then turn on the circuit breaker. This will help prevent relay contact welding due to dead shorts.

5) Verify that the schedule matches the lights operated by the relay.

6) Once the line circuits are connected and verified, connect low voltage switch wiring to relays or devices.
Voltage Dividers for PWEx Panels

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWEx-CL1-VDV-14</td>
<td>Voltage divider for PWE1 or PWE2 Panels.</td>
<td>• Material: 12ga Aluminum</td>
</tr>
<tr>
<td>PWEx-CL1-VDV-20</td>
<td>Voltage divider for PWE3, 4, 6 &amp; 8 Panels.</td>
<td></td>
</tr>
</tbody>
</table>

- Voltage dividers are used to divide the line voltage section of the relay panel into separate line voltage (Class 1) compartments.
- Separate compartments are required in some jurisdictions for circuits of different voltage or circuits that originate from different load centers.
- The voltage divider attaches to the barrier and backpanel of the interior with 2 screws.
- IMPORTANT: The voltage barrier will use up one relay space thereby reducing the relay capacity of the panel by one relay.

Plan View of Panel with Voltage divider Installed

Isometric View of Panel with Voltage divider Installed
## Technical Data

**PART No.**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPWE-Series Emergency Relay Panels</td>
<td>• Douglas EPWE-series relay panels are a versatile line of panels that use Douglas HID relays and utilize emergency ON protection in the event of power interruption.</td>
</tr>
<tr>
<td>• Standard sizes range from 12 to 72 relay capacity.</td>
<td>• Line voltage: 20A, 120/277.</td>
</tr>
<tr>
<td>• A panel consists of the enclosure (tub), the interior and the cover.</td>
<td>• Relay Control Input</td>
</tr>
<tr>
<td>Enclosures are installed in the rough-in stage and interiors are installed and connected after wires are pulled.</td>
<td>• Class 2 circuit, 350mA, 24V reverse polarity pulse.</td>
</tr>
<tr>
<td>• Panel includes one or more WRE-9242 Emergency Power ON devices that signal ON relays controlling emergency lighting circuits if there is power interruption.</td>
<td>• Class 2 input terminals: #16 AWG.</td>
</tr>
<tr>
<td>• Panels are certified to UL 924 Standard.</td>
<td>• Output Contact Ratings</td>
</tr>
<tr>
<td></td>
<td>• More than 30,000 operations with 20A load, 2000A irush at 20 times/minute switch speed.</td>
</tr>
<tr>
<td></td>
<td>• UL Endurance Test: 150,000 cycles.</td>
</tr>
<tr>
<td></td>
<td>• SCCR Rating: 14KA (WR-6161 and WR-6161-3 models only).</td>
</tr>
<tr>
<td></td>
<td>• CSA Certifications: 20A 347 VAC, 2400 W 120 VAC ‘T’, 20 A 347 VAC ‘F’.</td>
</tr>
<tr>
<td></td>
<td>• Output terminals: #10 - #14 AWG.</td>
</tr>
</tbody>
</table>

---

**Parts**

- **UL 1449 Certified Surge Suppressor**
  - Protects transformer and panel components from power surges.
  - Mounted in the high voltage compartment of the panel assembly.

- **24V Transformer**
  - Connected to neighboring terminals that connect to 120/277/347VAC from the breaker panel.
  - Powered from utility (normal) feed.

- **Power Failure ON Devices**
  - The WRE-9242 Device switches ON emergency circuits in the event power is interrupted to the Panel.
  - The device is connected directly to as many as 2 emergency-designated relays.
  - Additional WRE-9242 Devices can be installed in the Panel, depending on the number of emergency-designated relays.

- **Panel Assembly**
  - Outer enclosure and cover made of steel coated with ANSI/ASA grey epoxy finish. Interior insert is aluminum and steel.
  - Various sizes to fit 12 to 72 relays.
  - EEMAC/NEMA 1 Standard or NEMA 4 or NEMA 4x Standard.
  - Hinged, surface or flush cover.

- **Output Relays**
  - 12 to 72, depending on panel size.
  - Rated 20A, 120/277.
  - Connect black to top terminal and red to bottom terminal for each relay used.

---

**Panel Assembly**

- Enclosure, barriers and cover made of steel coated with ANSI/ASA 61 Grey epoxy finish.
- EEMAC/NEMA 1 or NEMA 4 or NEMA 4x Standard.
- ETL certified to UL924 Standard.

---

**Components**

- A-1.11,12 Relays and Panels, Emergency Panels
- www.DouglasLightingControls.com
Panel Numbering System:

<table>
<thead>
<tr>
<th>NEMA Enclosure</th>
<th>Enclosure</th>
<th>Interior</th>
<th>Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>N4x</td>
<td>EPWE</td>
<td>CxxM</td>
<td>S1F2 or S3F4</td>
</tr>
</tbody>
</table>

Symbols:
- low voltage area
- high voltage area
- HID relay
- transformer
- surge protector
- power failure ON device

Compartment Style Barrier Layout:
- All panels are 4.25" deep

Wireway Style Barrier Layout:
- All panels are 4.25' deep

<table>
<thead>
<tr>
<th>Capacity</th>
<th>24 relays</th>
<th>36 relays</th>
<th>48 relays</th>
<th>72 relays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>EPWE3-W24M-**</td>
<td>EPWE4-W36M-**</td>
<td>EPWE6-W48M-**</td>
<td>EPWE8-W72M-**</td>
</tr>
</tbody>
</table>

**Add cover style number at end of P/N

Emergency Circuit Wiring Diagram:

Emergency Power Panel
- Utility Power
- Generator or AC Inverter

EPWE-Series Control Panel
- Red: WRE-9242 Power Failure ON Device
- Blue: 24VAC Transformer
- Surge Protector

Normal Power Panel
- 120 or 277V Source
The Dialog® Lighting Control Unit (LCU) is used for centralized facility or multi-facility applications to manage the Dialog Lighting Control System. The controller is located within the low voltage compartment of a relay panel in order to control and coordinate building lights based on messaging from peripheral devices, scheduled programs, and pre-configured actions. Its non-volatile memory stores the lighting control programming that manages the facilities lights. The large 6.25”H x 3.75”W capacitive touchscreen can be used for adding or changing system settings. An integral web-server is provided for a remote browser interface. For larger projects, touchscreen panel computers and iPad® devices can be used for system control. Contacts are available to control HVAC and security systems. Native BACnet capabilities provides connectivity to Building Management Systems. The USB port can be used for downloading (and uploading) system programming.

The Dialog Lighting Control Unit is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLC-4150</td>
<td>Lighting control unit for Dialog centralized lighting control system - BACnet</td>
</tr>
</tbody>
</table>
**DIMENSIONS & MOUNTING**

- **Front View**
  - 4.5" (116mm)
  - 7.8" (198mm)

- **Side View**
  - 4.5" (116mm)

- **Top View**
  - 4.5" (116mm)

- **Bottom View**
  - 1.17" (29.90mm)

**Note:** Maximum wire length: 1000ft (300m); Aggregate 3000ft (900m) - Amplifiers used to extend distances when required.

<table>
<thead>
<tr>
<th>POWER</th>
<th>• 24VAC, 1A is required for power</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMUNICATION</td>
<td>• Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus</td>
</tr>
</tbody>
</table>
| INTERFACE | • Approx 6.25"H x 3.75"W capacitive touch screen  
  • Full colour |
| OUTPUT | • 500mA |
| FUNCTIONALITY | • Addressability  
  • Astronomical time clock (plus auto daylight savings time change)  
  • Scheduling including vacation overrides  
  • 0-10V dimming  
  • Natural daylight priority  
  • Room control  
  • Demand response  
  • Zone control  
  • BACnet |
| ENVIRONMENT | • Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity  
  • Ambient operating temperature: +5°F to +120°F (-15°C to +50°C) |
| WARRANTY | • 1 year warranty |

* Application and Performance Specification Information Subject to Change without Notification  
Rev. 6/23/17  
Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
WR-4075 Series: Standard Duty
- 40VA steady draw, 75VA pulsed draw.
- Current limiting and internally fused with an automatically resetting thermal fuse.

WR-4075-120/277
120/277V Primary : 24VAC* Secondary

WR-4075-120/347
120/347V Primary : 24VAC* Secondary

WR-4075-240
240V Primary : 24VAC* Secondary
* Secondary voltage varies from 24V to 29V depending upon load.

WR-4040 Series: Light Duty
- 40VA steady draw, 40VA pulsed draw.
- Current limiting and internally fused with a one time event fuse.

WR-4040-120
120V Primary : 24VAC Secondary

Number of Relays per Switch | Wire Length (feet) | Wire Gauge
--- | --- | ---
1 | 2000 (600) | 18 AWG
2 | 1500 (450) | 18 AWG
3 | 1000 (300) | 18 AWG
4 | 500 (150) | 18 AWG
6 | 300 (90) | 18 AWG
8 | 160 (50) | 18 AWG
**Transformer Loads**

Douglas relays do not use any power while in the latched on or off state. Power is only used when the relay switches over.

In the vast majority of cases, only 1 transformer per relay panel will be all that is required. Theoretically, there is no limit to the amount of relays that can be switched by 1 transformer.

There are Douglas devices other than relays that do use low amounts of steady state power. For example, the LEDs of the LED style switches use power. Relay scanners, time clocks, and other electronic devices also use power. If a large number of these devices are powered by one transformer, do a "LOADING CALCULATION" to ensure that there is no overload. In the rare case there is an overload, split the circuits and use more than 1 transformer.

**Loading Calculations**

If a large number of devices are being connected to a transformer, check to ensure that the transformer loading is correct. The example shown below illustrates the method of calculation.

**Example**: A system has the following components.

- 100 LED switches
- 48 2-wire relays
- 2 Relay scanners
- 1 Photocell controller

Check how many relays can be switched at one time.

A) Calculate the maximum number of relays that can be switched at one time ignoring wiring distance:

1. Total the steady state current requirement
   - Led Switches $100 \times 4\text{mA} = 400\text{mA}$
   - Relays $48 \times 0\text{mA} = 0\text{mA}$
   - Relay Scanners $2 \times 100\text{mA} = 200\text{mA}$
   - Photocell Controller $1 \times 100\text{mA} = 100\text{mA}$
   - Total steady state current $= 700\text{mA}$

2. Check that the steady state current requirement does not exceed 1.6 Amperes. In the rare cases that the steady state current exceeds 1.6 A, extra transformers will have to be added and circuitry will have to be split.
   - For this example, the steady state current is 700mA which is less than 1.6 amperes (1600mA).

3. Subtract the steady state current from the total momentary current available to obtain the amount of current available for switching relays.
   - Total current available from a WR-4075 series transformer for a momentary switching pulse is 3000mA (75VA).
   - For this example, the current available for switching relays is 2300mA (3000 - 700).

4. Divide the total available relay current by the current draw of a relay (350mA) to obtain the maximum number of relays that can be switched at one time.
   - $2300 \div 350 = 6.57$ - Round the answer down to 6 relays.

B) The maximum number of relays that can be switched at one time is either the value obtained by the above calculation or the value determined by the maximum wiring distance allowed - WHICHEVER IS LESS.

If the wire distance is 600 feet and the wire gauge is #18 AWG, then the limit is 4 relays, not 6 relays (see wire distance chart).
### PART No. DESCRIPTION

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR-6161</td>
<td>1 pole HID relay 20A: 120/277/347</td>
<td>• Douglas relays are 2-wire latching relays that are lighting load rated for standard 20A branch circuits.</td>
</tr>
<tr>
<td>WR-6161-382</td>
<td>1 pole HID relay with aux contacts 20A: 120/277/347 (aux contacts 1A: 125VAC)</td>
<td>• Douglas 2-wire heavy duty HID relays are suitable for all types of lighting loads including capacitor corrected HID ballasts.</td>
</tr>
<tr>
<td>WR-6172</td>
<td>2 pole HID relay 20A: 120/277/347/480</td>
<td>• Manual operation lever and indicator are built-in for convenient operation and status check at the panel.</td>
</tr>
<tr>
<td>WR-6172-382</td>
<td>2 pole HID relay with aux contacts 20A: 120/277/347/480 (aux contacts 1A: 125VAC)</td>
<td>• Douglas HID relays are available with auxiliary contacts on the low voltage side of the relay. Contact not required for Douglas system, but may have application for specialty requirements.</td>
</tr>
</tbody>
</table>

#### Control Input
- Class 2 circuit.
- 0.350A (350mA).
- 24V reversible polarity pulse.
- Input terminals: #16 - #20AWG

#### Output Contact Ratings
- More than 30,000 operations with 20A load, 2000A inrush @20 times / min. switch speed

#### UL Listing
- 20A 300VAC
- 2400W 120VAC "T"
- 20A 300 VAC “F”
- 20A 480 VAC “F” (WR-6172 only)

#### Motor Rating:
- 0.5HP at 110-125VAC
- 1.5HP at 220-277VAC

#### SCCR Rating:
- 14KA (WR-6161, WR-6161-3)
- 5KA (WR-6172, WR-6172-3)

#### CSA Certifications
- 20A 347VAC
- 2400W 120VAC "T"
- 20A 347VAC "F".

### Environment
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
- Ambient temperature: +15°F to +120°F (-10°C to +50°C).

#### Note:
- The 2 pole relay (WR-6172) has the same input ratings as the 1 pole relay. Use this feature to double the load switching capacity of a low voltage switch.

### DIMENSIONS & MOUNTING
WR-6100 series relays mount to a snap rail built into Douglas PWEx series relay panels.

- **WR-6161**
  - One Pole: 0.98" (25)
  - Two Pole: 2.4" (60)
- **WR-6172**
  - One Pole: 3.8" (97)
  - Two Pole: 1.97" (50)
2-WIRE RELAY TECHNOLOGY

- Douglas 2-wire relays utilize an ingenious control method that permits simple and minimal wiring. All functions for low voltage control: on, off, indication, and location are provided with only a 2-wire connection of which one is often a common. All Douglas relays manufactured over the past 30 years utilize the same principle. Thus, any Douglas switching device is compatible with any model of Douglas relay.

Operational Principle

- A negative pulse turns the relay ON and a positive pulse turns it OFF. Using a diode, an AC signal can be rectified to turn the relay either ON or OFF. Douglas switches have 2 diodes built into the switch to provide the ON and OFF signals.

- The relay has 2 similar diodes built inside that are in series with the relay coil. The diodes in the relay act as gates for the switch signal.

- To turn the relay ON or OFF, the rocker switch completes the circuit by selecting the ON or OFF diode. If the diode selected is in the same direction as the gate diode in the relay, the relay will switch. If the gate diode is not in the correct direction, then nothing will happen since the relay is already in the correct state for the action selected by the switch. When the switch is released, a spring returns it to the central neutral position.

- Indication (ON state) and location (OFF state) are obtained by utilizing LED diodes built into the switch. Only the LED which is connected in the same direction as the gate diode in the relay will light. Although the LED current passes through the relay coil, it is not large enough to cause the relay to trip. However, there is a limit: the maximum number of LED switches that can be connected to the same relay is 6.

- For additional convenience (especially during installation) all standard models have a manual control lever and indicator permitting a non-electrical method of switching and status check at the panel.

Detailed LED Switch Circuit *

- LED Switch circuit actually not as shown. Switch is functionally similar except rocker switch is replaced with single push button.
The Global Web Server (GWS) is an important part of the Dialog lighting control system by allowing for multiple lighting control units (LCU) in a centralized controls system. When a lighting control system requires greater than 252 relay or 252 dimming channels, the Global Web Server expands the capabilities of the system. The Global Web Server consists of a metal enclosure which houses all of the internal components. The Global Web Server has the ability to not only provide the lighting control system with extended capabilities, but can also host an optional web accessible graphics control package.

The optional graphics package allows users to access system features using a customized graphical user interface. Customizations can include logos/color schemes, custom button layouts and building customized floor plans. When the graphics package is included, a building’s floor plans will be imported into the server to provide real-time lighting zone status. In addition to the status of each lighting zone, the user has the ability to modify the state of each lighting zone.

Typical Applications: Stadiums, Large Office Buildings, University/College Campuses, projects requiring a graphical web interface

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWS-Basic</td>
<td>Includes server, connectivity devices, 16-port hub. Installed in metal enclosure with cover</td>
</tr>
<tr>
<td>GWS-Graphics</td>
<td>Includes server, connectivity devices, 16-port hub, graphics package. Installed in metal enclosure with cover</td>
</tr>
</tbody>
</table>
POWER
• 120VAC, 60Hz, 1.8A

COMMUNICATION
• 1000Base-T, 1Gb/s Ethernet
• Cat 5 or Cat 6 cable

INTERFACE
• Web browser interface
• Internet Explorer 9, 10, 11
• Router: Cisco SF-110D-16-NA
• Ethernet Extender: Versatek VXVEB160G4

ENCLOSURE
• Steel coated with heat fused polyester epoxy ANSI/ASA, 61 Grey finish

ENVIRONMENT
• Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
• Ambient operating temperature: +32ºF to +122ºF (0ºC to +50ºC)

WARRANTY
• 1 year warranty
The Douglas Lighting Controls® Graphical User Interface is used in a smaller centralized Dialog® lighting control system. It is pre-wired and installed into a panel and provides web-based computer driven graphical control. Graphics are pre-configured by Douglas Lighting Controls.

Features
- Easy to navigate graphical display
- Factory installed into panel
- Factory configured for each project

<table>
<thead>
<tr>
<th>LCU PER SYSTEM</th>
<th>MAX. RELAYS PER SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>252</td>
</tr>
<tr>
<td>2</td>
<td>504</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLC-GUI-A</td>
<td>Graphical User Interface Device</td>
</tr>
</tbody>
</table>

Graphical Display

Second Floor

- Open Office - West
- Open Office - East
- Corridors
- Accounting
- Manager - Eng
- Manager - Acc
- Manager - Product
- Back Entrance
- Front Entrance
**Douglas Lighting Controls® Graphical User Interface Device**

**DIMENSIONS**
- (W x D x H): 106 mm x 60 mm x 90 (98) mm

**MATERIAL**
- Plastic

**MOUNTING**
- On standard mounting rail 35 mm

**PROTECTION CLASS**
- No fan; by convection

**TEMPERATURE RANGE**
- 0-50 °C

**CONNECTION**
- Removable spring terminals #18 AWG

**DISPLAY LEDS**
- Operating display, Error, Run, CAN-bus COM interface Ethernet

**INPUT VOLTAGE**
- U(typ.) = 24 V DC (19-30 V DC)

**INPUT CURRENT**
- I(typ.) = approx. 160 mA

**POWER CONSUMPTION**
- Approx. 4 W

**MAX. BACK-UP FUSE**
- 2 A

**Housing:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIMENSIONS</strong></td>
<td>(W x D x H): 106 mm x 60 mm x 90 (98) mm</td>
</tr>
<tr>
<td><strong>MATERIAL</strong></td>
<td>Plastic</td>
</tr>
<tr>
<td><strong>MOUNTING</strong></td>
<td>On standard mounting rail 35 mm</td>
</tr>
<tr>
<td><strong>PROTECTION CLASS</strong></td>
<td>No fan; by convection</td>
</tr>
<tr>
<td><strong>TEMPERATURE RANGE</strong></td>
<td>0-50 °C</td>
</tr>
<tr>
<td><strong>CONNECTION</strong></td>
<td>Removable spring terminals #18 AWG</td>
</tr>
<tr>
<td><strong>DISPLAY LEDS</strong></td>
<td>Operating display, Error, Run, CAN-bus COM interface Ethernet</td>
</tr>
</tbody>
</table>

**Power Supply:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT VOLTAGE</strong></td>
<td>U(typ.) = 24 V DC (19-30 V DC)</td>
</tr>
<tr>
<td><strong>INPUT CURRENT</strong></td>
<td>I(typ.) = approx. 160 mA</td>
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<tr>
<td><strong>POWER CONSUMPTION</strong></td>
<td>Approx. 4 W</td>
</tr>
<tr>
<td><strong>MAX. BACK-UP FUSE</strong></td>
<td>2 A</td>
</tr>
</tbody>
</table>
## Technical

### WDB-3314

**Data line 0-10V Ballast Controller**

- **PART No.**
  - WDB-3314
- **DESCRIPTION**
  - The WDB-3314 Ballast Controller is designed for dimming 0-10V ballasts.
  - There are four dimming outputs.
  - If several ballasts are connected to the same 0-10V dimmer output, they will dim together. Depending upon the ballast type, up to 35 fluorescent ballasts can be connected per output.
  - To control the dimmer output unit, connect it to the Dialog data signal and set the unit to an output address using the dip switches.
  - For projects that require ON/OFF control for the same addresses as the dimmer unit, use a relay driver or relay module set to the same address.

### SPECIFICATION

**Power**
- Signal draw: 4mA.

**Communication**
- Dialog Data Signal is required for communication to the Dialog system.
- Set the device’s major address (0-63) with the DIP switch bank on the unit. The 4 dimming outputs each assume the minor addresses ##.1, ##.2, ##.3 and ##.4.

**0-10V Outputs**
- There are 4, 0-10V outputs.
- These outputs are designed for standard 0-10V fluorescent ballasts control.
- Up to 35 fluorescent ballasts can be connected to a single 0-10V output.

**Environment**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity.
- Ambient temp: -5°F to +120° F (-15° C to +50° C).

**Dimensions & Mounting**

- **35mm DIN Rail Mounting**
  - 3.89" [99]
  - 4.41" [112]
  - 1.26" [32]

### Data Signal

- The source connection for the Dialog data signal, 4mA supply.

### 0-10V Outputs

- **FOUR, 0-10V Dimmer Outputs.**
  - Connect to standard 0-10V fluorescent dimmable ballasts.
  - Maximum 35 fluorescent ballasts per output.

### Output Address

- Addresses are organized by major and minor address.
- The DIP switch sets the major address, the minor address is preset as shown on the output device.

---

**Dialog Lighting Control System**

www.DouglasLightingControls.com
The Dialog Relay Driver is installed in the Dialog Panel and output addresses are set with DIP switches on the unit. There are two sets of address DIP switches: one set for the left four outputs and the other set for the right four outputs. Addresses are set such that they are unique from all others. The WLC-4150 Lighting Control Unit will detect and warn of duplicate addresses. Output addresses are organized by major and minor addresses. Major addresses are set with the DIP switch, and there is one output wire for each of the 4 minor addresses.

The Relay Driver has eight outputs with one relay per output. A maximum of two relays can be connected to an output, but in this case they would switch together. The Dialog Relay drivers connect together to support additional relays.

The Dialog Relay Driver is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRD-3408z</td>
<td>Relay driver, 8 outputs, DIP set</td>
</tr>
</tbody>
</table>
OVERVIEW
• The WRD-3408 relay driver has 2 output addresses, one for the 4 relays on the left side and one for the 4 relays on the right side. Each output address is set with a DIP switch block that sets the major part of the output address.
• In most cases each output is connected to 1 Douglas relay to give it a unique output address. Up to 2 relays can be connected to an output, however they will both switch together.

POWER
• Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

COMMUNICATION
• Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

CURRENT DRAW
• 3mA

OUTPUT
• 8 Douglas relay outputs
• Connect a maximum of 2 relays to each output

ENVIRONMENT
• Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
• Ambient operating temperature: +5°F to +120°F (-15°C to +50°C)

WARRANTY
• 1 year warranty
The Dialog® Contact Input Unit has eight contact inputs that permit contact closures from other systems or devices to signal the Dialog system.

The Dialog Contact Input Unit is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCI-3928</td>
<td>Contact input, infrared set, c/w 24 VDC, 500 mA supply</td>
</tr>
</tbody>
</table>

Douglas Lighting Controls Dialog Eco-System
**DIMENSIONS & MOUNTING**

**Plain View**

- 3mm DIN Rail Mounting
- 3.89" [99mm]
- 4.41" [112mm]

**Side View**

- 1.80" [46mm]
- 1.26" [32mm]

---

**POWER**

- 24VAC

**COMMUNICATION**

- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

**CURRENT DRAW**

- 4mA

**INPUT**

- To activate a contact input, apply a +24VDC signal to the input
- There are 8 contact inputs to provide a separate ON and OFF control to the output or group targeted
- Use the 8 contact inputs for connection to external devices
- Use 24VDC to signal inputs of the WCI-3928
- Each input requires 7mA of signal

**OUTPUT**

- Max load: 500mA

**ENVIRONMENT**

- Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity.
- Ambient temp: +5° to +120° F (-15° C to +50° C)

**WARRANTY**

- 1 year warranty

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* Application and Performance Specification Information Subject to Change without Notification

Rev. 6/23/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
## Infrared Setting Unit

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
</table>
| WIR-3110 | Infrared Setting Unit | • The Infrared Setting Unit is used to set the input devices target to an output address or group code.  
• A infrared signal is used to read and write the address or code information.  
• All Input Devices have an infrared transceiver built in that is compatible with the Infrared Setting Unit.  
• Point the Unit at the device to be set, and press the receive information button to identify the device and its contents to the Infrared Setting Unit. Then make edits as required and send the new settings back into the device. |

**Power**  
• 2 AA standard alkaline or rechargeable NiMH batteries.

**Communication**  
• Infrared communication to Dialog devices equipped with IR transceiver.

**Interface & Operation**  
• IR Setting Unit can request, via IR link, from the device what type it is, display the options available edit and send those options back to the device.  
• Settings include but are not limited to:  
  - display present device target.  
  - set device address or group target.  
  - adjust device settings.

**Environment**  
• Non-vibrating, non-corrosive atmosphere & non-condensing humidity.  
• Ambient temp: 5°F to +120°F (-15°C to +50°C).

### WIR-3110 Infrared Setting Unit

Use to set output address or group codes into Input Devices. Input Devices include: switches, occupancy sensors contact inputs and photo sensors.

### IR Transceiver

Built-in IR transceiver for setting target address, group code and preset code of an input device.

### DIMENSIONS & MOUNTING

<table>
<thead>
<tr>
<th>Plain View</th>
<th>Side View</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0&quot; [152]</td>
<td>4.94&quot; [125]</td>
</tr>
<tr>
<td>1.28&quot; [32.5]</td>
<td></td>
</tr>
</tbody>
</table>
The Dialog® Ceiling Occupancy Sensor is a part of a Dialog centralized control system as it provides occupancy / vacancy detection via a dual technology recessed ceiling mounted sensor. The Ceiling Occupancy Sensor only requires connection to the 2-wire (18/2 AWG) Dialog power and data network. The Dialog occupancy sensor uses PIR and ADI-Voice technologies to determine the presence of people and perform the control actions when occupancy / vacancy is detected. Self-Adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing energy savings. Smart Sense allows for immediate return to occupied mode in the event of a false off being triggered.

Programming can be performed by using the IR Setting Unit for added convenience, especially during commissioning. The WOR sensor will fit in a standard octagon box with conduit entering from opposite sides. The recessed sensor provides 360° of coverage and has a tilting lens to direct the sensor to specific areas.

The Dialog Lighting Control Unit is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORSDG1-P-N</td>
<td>Dialog standard range ceiling mount recessed occupancy sensor</td>
</tr>
<tr>
<td>WORXDG1-P-N</td>
<td>Dialog extended range ceiling mount recessed occupancy sensor</td>
</tr>
<tr>
<td>WORBDG1-P-N</td>
<td>Dialog high-bay range ceiling mount recessed occupancy sensor</td>
</tr>
</tbody>
</table>

Sensor Modes and Settings

**Programming - IR**
Programming can be done with the WIR-3110 setting unit. For more details and additional options please see the “IR Setting Unit Manual”

**Detection (Dual or PIR Only)**
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

**Automatic Timeout**
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

**Vacancy**
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

**Smart Sense**
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During the period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

**Walk-Thru**
Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs in the first 30 seconds after initial turn on.

**Photo Cell (-P)**
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. An increase in natural light will not force the lights off, but as the ambient light level drops, the lights will turn on automatically. This feature also limit the manual switching, ensuring the lights are not turned on if adequate light is present.
Dialog® Ceiling Occupancy Sensor*

FUNCTIONALITY
• Occupancy / Vacancy settings
• 30 degree tilt lens
• Integrated switch for commissioning override
• Photocell for daylight harvesting
• Dual technology PIR and ADI-Voice Technology

COMMUNICATIONS
• Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

CURRENT DRAW
• 3mA

APPROVALS
• ASHRAE 90.1 Compliant
• California Energy Commission Title 24 & NYLL 48 Compliant
• FCC Compliant

ENVIRONMENT
• Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
• Operating temperature: 14°F to 140°F (-10°C to 60°C)
• Storage temperature: -14° to 140°F (-25° to 60°C)

WARRANTY
• Standard 1-year

*Patent Pending Subject to change without notice. Rev. 8/15/17
Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Features

- Wall Switch occupancy sensor provides 180° coverage to maximize the sensor area.
- The dual-tech sensor utilizes ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.
- A Self-Adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- Can be programmed by the IR Setting Unit for added convenience, especially during commissioning.

Operation

Low voltage sensors are powered by Dialog Bus. When in operation, the sensor will detect initial motion using PIR; once motion is detected the internal contact will close. The ADI-Voice is then activated to work alongside the PIR to detect occupancy.
INSTALLATION

- Mount the WOS Series sensor on the wall about 4' above floor level near the midline of the room so its PIR detection zones cover the room area and any obstructions are within range of the ADI-Voice detector.
- There should be no obstructions between the sensor and the room entrance. This ensures that the sensor's PIR lens will be activated when a person enters the room, which will subsequently trigger the ADI-Voice.

Installing in Offices
- Sensor effective in obstructed spaces.
- ADI-Voice re-activation and Smart Sense prevents lights out condition.

Installing in Washrooms
- Sensor effective in partitioned spaces.
- ADI-Voice re-activation and Smart Sense prevents lights out condition.

Standard Lens
- Optimal usage is to detect small motions such as hand movements
- Designed for a mounting height of up to 4ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

Typical Office

Typical Washroom
Features

**WOS Series Dialog Ceiling Occupancy Sensor**

**Wiring Instructions**
The WOS Series Low Voltage sensors are equipped with #18 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

**Sensor Settings**

**Programming - IR / Manual Setting**
Programming can be done with the WIR-3110 setting unit. For more details and additional options please see the “IR Setting Unit Manual”

**Detection (Dual or PIR Only)**
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then is activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

**Automatic Timeout**
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

**Smart Sensing**
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs in the first 30 seconds after initial turn on.

**Vacancy Mode**
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override input; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

**Photo Sensing (-P)**
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. An increase in natural light will not force the lights off but as the ambient light level drops the lights will turn on automatically. This feature will also limit the manual switching, ensuring the lights are not turned on if adequate light is present.

**Profile**
The Dialog sensor exists as three profiles in the system: a Switch, a Photocell, and an Occupancy Sensor. Each profile element can control separate control targets.

**Summary of Configuration Options**
Each building is unique in its lighting needs. Diversa sensors provide the user with a wide variety of configuration options to ensure each building’s individual needs are met.

- Timeout 30 sec - 30 min or self adapting
- Adjustable PIR Sensitivity
- Adjustable Detect Intelligence Voice (ADI-Voice) Sensitivity
- Enable/Disable ADI-Voice
- Enable/Disable LED Indicators
- Enable/Disable Walk Through Mode
- Set parameters for light level setting upon occupancy detection

* Application and Performance Specification Information Subject to Change without Notification
Technical

WOW Series Dialog Wall Mount Occupancy Sensor

<table>
<thead>
<tr>
<th>PART No.</th>
<th>FEATURES</th>
<th>SPECIFICATION</th>
</tr>
</thead>
</table>
| Corner Range | • The Dialog occupancy sensors use PIR and ADI-Voice technologies to determine the presence of people and perform the control actions when occupancy (or vacancy) is detected  
• The WOW Series of sensors are designed to surface mount on a wall giving either a 90° coverage pattern  
• The Dialog edition of this sensor gives the capability of operating and controlling directly on the Dialog bus | Communication: Dialog Data signal is the only connection required  
Output:  
• Action on: Occupancy/Unoccupancy, Switch, Photo Reading  
Approvals: FCC  
Environment:  
• Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity  
• Ambient Operating Temperature: 14°F to 140°F (-10°C to 60°C)  
• Storage Temperature: -14°F to 140°F (-25°C to 60°C) |

Features

• Wall mounted occupancy sensor provides 90° coverage. Has the ability to rotate in both the horizontal and vertical axis to optimize the sensing area.

• The dual-tech sensor utilizes ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.

• A Self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.

• Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.

• Can be programmed by the IR Setting Unit for added convenience, especially during commissioning.

Operation

Low voltage sensors are powered by Dialog data bus. When in operation, the sensor will detect initial motion using PIR; once motion is detected the internal contact will close. The ADI-Voice is then activated to work alongside the PIR to detect occupancy.

Dimensions & Mounting

• Unit mounts into an octagon box.

Wall Mounted

Ceiling Mounted
INSTALLATION

Installing in Smaller Room (Corner Lens)
- Locate the sensor in the corner, along the entrance door to prevent it from viewing out into the hallway.
- The sensor can be rotated, allowing it to be pointed along the entrance door and slightly downwards.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor’s maximum PIR range.

Corner Lens
- Optimal usage is to detect small motions such as hand movements
- Designed for a mounting height of up to 7-15ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

Typical Enclosed Office

Top View

Side View

14 ft

0 ft

8’ 17’ 35’ 70’
Features | WOW Series Dialog Ceiling Occupancy Sensor

Wiring Instructions
The WOW Series Low Voltage sensors are equipped with #18 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Sensor Settings

Programming - IR
Programming can be done with the WIR-3110 setting unit. For more details and additional options please see the “IR Setting Unit Manual”

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then is activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs in the first 30 seconds after initial turn on.

Vacancy Mode
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override input; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. An increase in natural light will not force the lights off but as the ambient light level drops the lights will turn on automatically. This feature will also limit the manual switching, ensuring the lights are not turned on if adequate light is present.

Profile
The Dialog sensor exists as three profiles in the system: a Switch, a Photocell, and an Occupancy Sensor. Each profile element can control separate control targets.

Summary of Configuration Options
Each building is unique in its lighting needs. Diversa sensors provide the user with a wide variety of configuration options to ensure each building’s individual needs are met.

- Timeout 30 sec - 30 min or self adapting
- Adjustable PIR Sensitivity
- Adjustable Detect Intelligence Voice (ADI-Voice) Sensitivity
- Enable/Disable ADI-Voice
- Enable/Disable LED Indicators
- Enable/Disable Walk Through Mode
- Set parameters for light level setting upon occupancy detection

* Application and Performance Specification Information Subject to Change without Notification
The daylight sensor mounts on the ceiling and points downward to measure the light reflected from the surface below. The sensor is installed such that it can be aimed at a spot that is representative of the light being measured. The WPS-3711 sensor has a tilting lens for directing the sensor to or away from specific areas. Good targets are open floor areas and or walls that receive natural light. Poor target areas are desktop surfaces as the reflectivity changes depending on what is on the desk.

The Dialog Ceiling Mount Daylight Sensor is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

### Features
- Auto-ranging with light levels from 0 to 65,000 lux (0-6,500 fc)
- Connects to the 2-wire Dialog® data bus for power and communications
- All settings are stored on the WLC-4150 Lighting Control Unit (LCU)
- Low profile design
- Adjustable pivot head
- Programming done via handheld infrared device

### PART NUMBER | DESCRIPTION
---|---
WPS-3711 | Interior ceiling mount data line daylight sensor, infrared set

The Dialog Ceiling Mount Daylight Sensor is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.
**DIMENSIONS & MOUNTING**

**Mounting Ring**
- Wire
- Mounting Ring
- Ceiling Tile

**Octagon Junction Box**
- Good wire space
- Poor wire space

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POWER</strong></td>
<td>* Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus</td>
</tr>
<tr>
<td><strong>COMMUNICATION</strong></td>
<td>* Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus</td>
</tr>
<tr>
<td><strong>CURRENT DRAW</strong></td>
<td>* 3mA</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>* Measures and reports light levels from 0 to 65,000 lux to LCU</td>
</tr>
<tr>
<td><strong>ENVIRONMENT</strong></td>
<td>* Indoors, stationary, non-vibrating, non-corrosive atmosphere &amp; non-condensing humidity</td>
</tr>
<tr>
<td></td>
<td>* Ambient operating temperature: +5°F to +120°F (-15°C to +50°C)</td>
</tr>
<tr>
<td><strong>WARRANTY</strong></td>
<td>* 1 year warranty</td>
</tr>
</tbody>
</table>

* Application and Performance Specification Information Subject to Change without Notification
Rev. 6/23/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The updated mechanical design of the Douglas Lighting Controls Exterior Daylight Sensor improves weather resistance and provides a means to tune the amount of light being measured at the sensor with the provision of a sun shield. The electronic specifications remain the same to ensure backwards compatibility with existing Douglas systems.

**DESCRIPTION**
- Exterior Daylight Sensor for detecting and transmitting light levels
- Light level range: 0 to 65,000 lux (0-6500 fc)
- Measures and reports changes in natural light
- Connects to control system data line
- Adjustable sun shield

**PART NUMBERS**
- **WPS-3741B**
  - For use with Dialog systems
  - Replaces WPS-3741

- **WPS-5527B**
  - For use with LitePak systems
  - Replaces WPS-5527

- **WPS-5941B-FTT**
  - For use with W2000 systems
  - Replaces WPS-5941-FTT

- **WPS-5942B-FTT**
  - For use with LonWorks & Micro-thermo systems
  - Replaces WPS-5942-FTT
  - Replaces WPS-5942-FTT-MT

**SPECIFICATIONS**

**Power**
- Signal draw: 15mA

**Communication**
- Digital Signal
- Maximum wire length 500ft.

**Environment**
- Stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
- Ambient Operating Temperature: -55°F to +130°F (-50°C to +55°C)

**Dimensions**
- Height: 3.5” (89mm)
- Maximum width: 2.0” (51mm)
- Integrated 0.5” chase nipple (includes lock ring)

**Installation**
- Performance is best maintained when installed in protected area to avoid inaccurate measurements due to build-up of dirt, dust, snow, or ice.
- Mount vertically on a fixed surface with sensor face directed North with a clear path to measure natural light.
- If Northern orientation is not available, position sensor to best capture natural light avoiding direct sunlight.
- If direct sunlight cannot be avoided, vertically center sun shield on sensor face.
- Once positioned, tighten chase nipple lock ring.
- Connect sensor wires as outlined below and on product (wire shielding is not required).

**Wiring**
- Connect wires to Dialog network.

**Top View**
- WPS-3741B
- Connect wires to Dialog network

**Notes:**
- North
- 90°
- 0°
- 0°
- 90°
- 2.9”
- 76mm
- 3.5”
- 89mm
- 2.0”
- 51mm
- 1/2”-14 NPSL THREAD
Dialog® Switch Stations

The Dialog wall switch is an integral part of a Dialog centralized control system as it provides user input into the system via a simple push button interface. The Dialog switch devices come in 1, 2, 3, 4, and 8 button modules to provide flexible and attractive solutions for the switch of your lighting control system. The switch modules only require connection to the Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus.

The switch has an LED indicator beside each button to show the real-time status of the targeted output or group. ORANGE LED indicates ON and BLUE LED indicates OFF. Each switch is programmable from a handheld IR programmer (provided by Douglas), therefore switches do not need to be removed, or disassembled when programming is required. Switches can be programmed for ON, OFF, TOGGLE, DIM and PRESET control.

The Dialog Switch Stations are part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

Typical Applications: Where user input is required for system control.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSW-3511</td>
<td>Data line switch – 1 gang, 1 button (1x1), infrared set; Signal draw: 3mA</td>
</tr>
<tr>
<td>WSW-3512</td>
<td>Data line switch – 1 gang, 2 button (2x1), infrared set; Signal draw: 3mA</td>
</tr>
<tr>
<td>WSW-3513</td>
<td>Data line switch – 1 gang, 3 button (3x1), infrared set; Signal draw: 3mA</td>
</tr>
<tr>
<td>WSW-3514</td>
<td>Data line switch – 1 gang, 4 button (4x1), infrared set; Signal draw: 3mA</td>
</tr>
<tr>
<td>WSW-3528</td>
<td>Data line switch – 1 gang, 8 button (4x2), infrared set; Signal draw: 3mA</td>
</tr>
</tbody>
</table>

Douglas Lighting Controls Dialog Eco-System
WIRING A DIALOG SWITCH
- Connect switches to the 2-conductor data line.
- Connection is low voltage, non-polarized t-tap capable.
- The maximum one way measurement from the controller to the switch device is 1000’. Should longer lengths be needed, use WAM-3190 amplifier.
- The Dialog system switches draw 24VDC power from the 2-conductor data line. Each switch uses 3mA of power. There is 500mA of total power available from the Dialog line for all devices. If power is insufficient, use WAM-3190 amplifiers for additional 500mA.

INSTALLATION
- Connect the 2-wire Dialog data line to the back of each switch module and install modules in standard wall boxes.
- Each switch module must have an output address or group code assigned.
- A Dialog system local network can have a total of 252 output and 127 group codes. A group code can host one, some, or all of the output addresses. There is no limit to the number of switches that can be set to the same address or group code.
- A switch targeted at a group code requires the group code to have an existing program to function.
- A switch targeted directly to an output address requires no extra programming.

PROGRAMMING
- A push button switch can send standard action commands:
  - ON, OFF, TOGGLE
  - Dim UP/DOWN (output or groups)
  - Presets 1 to 8 (groups only)
- In addition to standard action commands, presets can also set operating modes. Modes determine how input devices and output of the group behave.
  - Example 1: quiet time switch: disable motion sensor for 1 hour
  - Example 2: during off hours, switch activates group for 30-mins
  - Example 3: for a period of time, lock output to a defined level

POWER
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

COMMUNICATION
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

CURRENT DRAW
- 3mA

ENVIRONMENT
- Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
- Ambient operating temperature: +5ºF to +120ºF (-15ºC to +50ºC)

WARRANTY
- 1 year warranty

* Application and Performance Specification Information Subject to Change without Notification
Rev. 6/23/17
Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Dialog wall dimming switch is a part of a Dialog centralized control system as it provides user input into the system via a simple to understand push button/dimming interface. The Dialog dimming switch comes as a 1 button plus dimming module to provide flexible and attractive solutions for the dimming control requirements of your lighting control system. The dimming switch modules only require connection to the 2-wire (18/2 AWG) data line. Should a dimming switch station require expansion, connect extra modules to the existing data line.

The dimming switch has an LED indicator beside each button as well as multiple LED indicators beside the dimming buttons to show the real-time status of the targeted output or group. Orange LED indicated ON and blue LED indicates OFF. Each dimming switch is programmable from a handheld IR programmer (provided by Douglas), therefore dimming switches do not need to be removed, or disassembled when programming is required.

The Dialog 1-Button & Dimmer Wall Station Switch is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

**Typical Applications:** Where dimming input is required for system dimming control.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSD-3501</td>
<td>Data line dimmer and switch – 1 gang, 1 channel, infrared set; Signal draw 3.5mA</td>
</tr>
</tbody>
</table>
**Dialog® 1-Button & Dimmer Wall Station Switch**

**WIRING A DIALOG DIMMER SWITCH**
- Connect switches to the 2-conductor data line.
- Connection is low voltage, non-polarized t-tap capable.
- The maximum one way measurement from the controller to the switch device is 1000’. Should longer lengths be needed, use WAM-3190 amplifier.
- The Dialog dimmer switch draws power from the 2-conductor data line. Each switch uses 3.5mA of power. There is 500mA of total power available from the Dialog line for all devices. If power is insufficient, use WAM-3190 amplifiers for additional 500mA

**INSTALLATION**
- Connect the 2-wire Dialog data line to the back of each switch module and install modules in standard wall boxes.
- Each switch module must have an output address or group code assigned.
- A Dialog system local network can have a total of 252 output and 127 group codes. A group code can host one, some, or all of the output addresses. There is no limit to the number of switches that can be set to the same address or group code.
- A switch targeted at a group code requires the group code to have an existing program to function
- A switch targeted directly to an output address requires no extra programming.

**PROGRAMMING**
- A push button switch can send standard action commands:
  - ON/OFF (output or groups)
  - Dim UP/DOWN (output or groups)
- In addition to standard action commands, presets can also set operating modes. Modes determine how input devices and output of the group behave.
  - Example 1: quiet time switch: disable motion sensor for 1 hour
  - Example 2: during off hours, switch activates group for 30-mins
  - Example 3: for a period of time, lock output to a defined level

**POWER**
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

**COMMUNICATION**
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

**CURRENT DRAW**
- 3mA

**ENVIRONMENT**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
- Ambient operating temperature: +5°F to +120°F (-15°C to +50°C)

**WARRANTY**
- 1 year warranty

* Application and Performance Specification Information Subject to Change without Notification
Rev. 6/23/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Dialog key switch is a part of a Dialog centralized control system. It provides a key accessible input into the system via the front face of the wall switch. The Dialog key switch comes as a single key module to provide an attractive solution for the secured control requirements of your lighting control system. The key switch modules only require connection to the Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus.

The key switch can send a signal for both the clockwise and counterclockwise turns. This allows for multiple functions depending on the requirement of the system. The key switch has an LED indicator above the keyhole to show the real-time status of the targeted output or group. Orange LED indicated ON and blue LED indicates OFF. Each key switch is programmable from a handheld infrared programmer (provided by Douglas), therefore key switches do not need to be removed, or disassembled when programming is required.

The Dialog Key Switch is part of the Dialog System which includes relay panels, control cards and peripheral devices (Occupancy Sensor, Daylight Sensor, Wall Station Switches). Systems are built project specific, then factory programmed and tested before shipping to site. On-site support for commissioning is provided as needed.

**Typical Applications:** Where secure input is required for system control.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSK-3502</td>
<td>Data line key switch – 1 gang, 1 key, infrared set; Signal draw 3mA</td>
</tr>
</tbody>
</table>
Dialog® Key Switch*

**WIRING A DIALOG KEY SWITCH**
- Connect the key switch to the 2-conductor data line.
- Connection is low voltage, non-polarized t-tap capable.
- The maximum one way measurement from the controller to the switch device is 1000’. Should longer lengths be needed, use WAM-3190 amplifier.
- Each switch uses 3mA of power. There is 500mA of total power available from the Dialog line for all devices. A power amplifier is available (WAM-3190) is available should the 500mA limit is exceeded.

**INSTALLATION**
- Connect the 2-wire Dialog data line to the back of each switch module and install modules in standard wall boxes.
- Each switch module must have an output address or group code assigned.
- A Dialog system local network can have a total of 252 output and 127 group codes. A group code can host one, some, or all of the output addresses. There is no limit to the number of switches that can be set to the same address or group code.
- A switch targeted at a group code requires the group code to have an existing program to function
- A switch targeted directly to an output address requires no extra programming.

**PROGRAMMING**
- A key switch can send standard action commands:
  - ON/OFF (output or groups)
  - Dim UP/DOWN (output or groups)
- In addition to standard action commands, presets can also set operating modes. Modes determine how input devices and output of the group behave.
  - Example 1: quiet time switch: disable motion sensor for 1 hour
  - Example 2: during off hours, switch activates group for 30-mins
  - Example 3: for a period of time, lock output to a defined level

**POWER**
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

**COMMUNICATION**
- Dialog 2-wire (18/2 AWG) low voltage, non-polarized, power and data bus

**CURRENT DRAW**
- 3mA

**ENVIRONMENT**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
- Ambient operating temperature: +5°F to +120°F (-15°C to +50°C)

**WARRANTY**
- 1 year warranty

* Application and Performance Specification Information Subject to Change without Notification
Rev. 6/23/17
Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Douglas Lighting Controls® Bluetooth® Sensor is a dual technology ceiling mounted occupancy and daylight sensor. It communicates wirelessly with other Bluetooth devices within the Douglas Lighting Controls wireless mesh eco-system.

The Dual Technology sensor uses PIR and Bluetooth proximity detection to identify and maintain occupancy. PIR technology will identify motion in the area while the Bluetooth detection will identify occupancy by recognizing authorized Bluetooth enabled Smartphones in the area.

The Sensor is easily installed into soft ceiling tiles by using an innovative cutting head to eliminate the need for cutting tools. Once the hole is cut and the sensor is pushed into place, rubber ribs hold the sensor securely in place. Power for the sensor is provided by the Douglas Lighting Controls Bluetooth Controller (part # BT-PP20-A).

### Features
- Bluetooth® wireless technology
- Occupancy and Daylight Sensor
- Dual Technology (PIR & Bluetooth detection)
- Small form factor (1" diameter lens)
- Deck level configuration using smartphone App
- Innovative tool-less mounting

### Coverage

![Standard Lens Coverage Pattern - Side View](image)

### Douglas Lighting Controls Bluetooth Wireless Eco-system

- **Controller**
- **Gateway**
- **Occupancy / Daylight Sensor**
- **Control & Commissioning App**
- **Wall Station Switch**
- For integrating to Dialog Centralized system
Douglas Lighting Controls® Bluetooth® Sensor

FUNCTIONALITY
• Occupancy and daylight harvesting
• Fits into a 15/16” hole
• Powered by Douglas Lighting Controls Bluetooth Controller
• Download Douglas Lighting Controls App from Apple App store for configuration
• See Installation Manual for complete details

INPUT VOLTAGE
• 12VDC

WIRELESS RANGE
• 150’ Clear line of site, 50’ through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

APPROVALS
• ASHRAE 90.1 Compliant
• California Energy Commission Title 24 & NYLL 48 Compliant
• Contains IC: 8254A-B1010SP0
• Contains FCC ID: W7Z-B1010SP0

ENVIRONMENT
• Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
• Operating temperature: 32°F to 104°F (0°C to 40°C)
• Storage temperature: 14° to 140°F (-25° to 60°C)

WARRANTY
• Standard 1-year

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth® SIG, Inc. and any use of such marks by Panasonic is under license. Other trademarks and trade names are those of their respective owners.

Rev. 4/3/18

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Douglas Lighting Controls® Bluetooth® Fixture Controller & Sensor provides automated individual and group control of light fixtures using onboard sensors and Bluetooth technology.

The Douglas Lighting Controls Bluetooth Fixture Controller & Sensor is easily installed for ON/OFF or bi-level light functionality. The daylight sensor provides additional energy savings by adjusting (0-10V dimming) the lights to work with the amount of natural daylight available in open-sided parking garages or from windows.

Configuration of the Douglas Lighting Controls Fixture Controller & Sensor is done conveniently at deck level with our free Smartphone App using Bluetooth protocol to communicate with the device. A Bluetooth mesh network is created between devices for control over a group of Douglas Lighting Controls Bluetooth® Fixture Controller & Sensors.

The Controller & Sensor has a maximum vertical range of 40 feet and is powered from the fixture. It is tested to applicable UL and CSA standards and enables users to meet ASHRAE 90.1 and Title 24 energy code requirements. Once the device(s) are configured, the system will automatically operate to control lighting based on occupancy in the area and the system settings.

Typical Applications: Parking Garages – Warehouses - Manufacturing Facilities

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-FMS-A</td>
<td>Bluetooth® enabled fixture mounted occupancy/daylight sensor and controller</td>
</tr>
</tbody>
</table>

Coverage
FUNCTIONALITY
- Occupancy, CLC, bi-level level light set point, ON/OFF, adjustable OFF delay
- Download Douglas Lighting Controls App from Apple App store for configuration
- Outdoor Use – Rainproof when installed per instructions
- For Installation with field-installed conductors of 60°C (140°F) minimum rating
- See Installation Manual for complete details

INPUT VOLTAGE
- 120/277/347VAC 60Hz

RANGE
- 150' Clear line of site. 50' through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth® network integrity.)

OCC. SENSOR RANGE
- Up to 40 feet

LOAD RATINGS
- 800W @ 120VAC standard ballast
- 1200W @ 277VAC standard ballast
- 3300W @ 277VAC electronic ballast
- 1500W @ 347VAC standard ballast

DIMMING
- 0-10V

APPROVALS
- Conforms to UL STD. 508
- Certified to CSA STD. C22.2 #14
- Contains IC: 8254A-B1010SP0
- Contains FCC ID: W7Z-B1010SP0

WARRANTY
- Standard1-year

*Patent Pending Rev. 4/24/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Douglas Lighting Controls® Bluetooth® Controller converts fixtures into wirelessly controlled luminaires. The device provides individual or multi-fixture control based on the wiring configuration (one-to-one or one-to-many). Control functionality includes ON/OFF and 0-10v dimming control of the fixture(s) through a wireless control point eliminating the need for control wires between fixtures and making design and installation easier.

Each device is capable of communicating with other Douglas Lighting Controls Bluetooth enabled devices (occupancy sensors, gateways, and wall station switches) via the Bluetooth mesh network.

The Controller is easily installed using the ½” chase nipple and the included flying leads. Commissioning is conveniently done at deck level with our free smartphone App.

Typical Applications: For new fixtures or upgrading existing fixtures to wireless controls

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-PP20-A</td>
<td>Bluetooth enabled fixture controller</td>
</tr>
</tbody>
</table>
**FUNCTIONALITY**
- ON/OFF, 0-10V dimming, Demand Response Ready
- Download Douglas Lighting Controls App from Apple App store for configuration
- See Installation Manual for complete details

**INPUT VOLTAGE**
- 120/277/347VAC 60Hz

**AUX. OUTPUT**
- 12VDC, 30mA

**RANGE**
- 150’ Clear line of site, 50’ through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

**LOAD RATINGS**
- 800W @ 120VAC standard ballast
- 1200W @ 277VAC standard ballast
- 3300W @ 277VAC electronic ballast
- 1500W @ 347VAC standard ballast

**APPROVALS**
- ETL Listed
- Conforms to UL STDS. 508 and 1310
- Certified to CSA STD. C22.2 #14 and #223
- ETL Classified
- Conforms to UL STD. 2043
- Certified to ULC/ORD STD C2043
- ASHRAE 90.1 2010 Compliant
- California Energy Commission Title 24 Compliant
- Contains IC: 8254A-B1010SP0
- Contains FCC ID: W7Z-B1010SP0

**ENVIRONMENT**
- Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: 14° to 140°F (-25° to 60°C)

**WARRANTY**
- Standard 1-year

*Patent Pending  Rev. 4/25/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Douglas Lighting Controls® Bluetooth® Switches offer users finger tip control over lights in defined spaces. Each switch is a Bluetooth enabled device that communicates wirelessly with other Bluetooth devices within the Douglas Lighting Controls eco-system.

Available in 4-button, 8-button and 1-button & dimmer models, the switches are powered by 120/277VAC or 347VAC circuits to ensure reliable functionality. Switches are field commissioned via a Smartphone App.

Typical Applications: Where wireless fixture controls are required (requires a Douglas Lighting Controls Bluetooth device at fixture)

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-DMSW-U-A</td>
<td>Bluetooth enabled 1-button &amp; dimmer wall switch 120/277VAC</td>
</tr>
<tr>
<td>BT-DMSW-3-A</td>
<td>Bluetooth enabled 1-button &amp; dimmer wall switch 347VAC</td>
</tr>
<tr>
<td>BT-4BTSW-U-A</td>
<td>Bluetooth enabled 4-button wall switch 120/277VAC</td>
</tr>
<tr>
<td>BT-4BTSW-3-A</td>
<td>Bluetooth enabled 4-button wall switch 347VAC</td>
</tr>
<tr>
<td>BT-8BTSW-U-A</td>
<td>Bluetooth enabled 8-button wall switch 120/277VAC</td>
</tr>
<tr>
<td>BT-8BTSW-3-A</td>
<td>Bluetooth enabled 8-button wall switch 347VAC</td>
</tr>
</tbody>
</table>

Douglas Lighting Controls Bluetooth Wireless Eco-system

Controller

Gateway

Occupancy / Daylight Sensor

Fixure

Wall Station Switch

Control & Commissioning App

For integrating to Dialog Centralized system

ASHRAE 90.1 Compliant

California Compliant 24
**Douglas Lighting Controls® Bluetooth® Switches**

**FUNCTIONALITY**
- 4-button, 8-button, DIM/ON/OFF Bluetooth enabled switches
- Download Douglas Lighting Controls App from Apple App store for configuration
- See Installation Manual for complete details

**INPUT VOLTAGE**
- 120/277 or 347VAC 60Hz (product specific)

**RANGE**
- 150' Clear line of site. 50' through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

**APPROVALS**
- Certified to CAN/CSA Std. C22.2 No. 14
- Conforms to UL 508 Standard
- FCC Class A
- ASHRAE 90.1 2010 Compliant
- California Energy Commission Title 24 & NYLL 48 Compliant
- Contains IC: 8254A-B1010SP0
- Contains FCC ID: W7Z-B1010SP0

**ENVIRONMENT**
- Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: 14° to 140°F (-25° to 60°C)

**WARRANTY**
- Standard 1-year

---

**120/277VAC**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.81&quot; (97mm)</td>
<td>Height</td>
</tr>
<tr>
<td>3.28&quot; (83mm)</td>
<td>Depth</td>
</tr>
<tr>
<td>1.73&quot; (44mm)</td>
<td>Front to Back</td>
</tr>
<tr>
<td>0.3&quot; (8mm)</td>
<td>Side to Side</td>
</tr>
<tr>
<td>1.34&quot; (34mm)</td>
<td>Side View</td>
</tr>
</tbody>
</table>

**347VAC**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.08&quot; (97mm)</td>
<td>Height</td>
</tr>
<tr>
<td>3.53&quot; (83mm)</td>
<td>Depth</td>
</tr>
<tr>
<td>1.73&quot; (44mm)</td>
<td>Front to Back</td>
</tr>
<tr>
<td>0.3&quot; (8mm)</td>
<td>Side to Side</td>
</tr>
<tr>
<td>1.34&quot; (34mm)</td>
<td>Side View</td>
</tr>
</tbody>
</table>

---

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Panasonic is under license. Other trademarks and trade names are those of their respective owners.

*Patent Pending Rev. 4/25/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The Douglas Lighting Controls Bluetooth® Integrated Fixture Controller & Sensor provides individual and group control of light fixtures using onboard sensors and Bluetooth technology. It is easily integrated into fixtures by creating a 2” hole to hold the device. A watertight gasket protects the sensor from water ingress. (See manual for complete installation details.)

The sensor includes occupancy sensors for ON/OFF or bi-level light functionality. The daylight sensor provides additional energy savings by adjusting (0-10V dimming) the lights to work with the amount of natural daylight available in open-sided parking garages.

Configuration of the sensor is done conveniently at deck level with our free Smartphone App using Bluetooth protocol to communicate with the device. A Bluetooth mesh network is created between devices for control over a group of Douglas Lighting Controls Bluetooth Fixture Controller & Sensors.

The sensor has a maximum vertical range of 40 feet and is powered from the fixture. It is tested to applicable UL and CSA standards and enables users to meets ASHRAE 90.1 and Title 24 energy code requirements.

**Typical Applications:** Integrated into fixtures (for OEM projects)

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMS-PG001</td>
<td>Bluetooth Enabled Integrated Fixture Controller and Occupancy/Daylight Sensor</td>
</tr>
</tbody>
</table>

*Patent Pending*
### Douglas Lighting Controls Bluetooth® Integrated Fixture Controller & Sensor*

**FUNCTIONALITY**
- Occupancy, CLC, Bi-level level light set point, ON/OFF, Adjustable OFF delay
- Download Douglas Lighting Controls App from Apple App store for configuration
- Outdoor Use – Rainproof when installed per instructions
- For Installation with field-installed conductors of 60°C (140°F) minimum rating

**WIRELESS RANGE**
- 150' Clear line of site, 50' through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

**INPUT VOLTAGE**
- 120/277/347VAC 60Hz

**SENSOR RANGE**
- Up to 40 feet

**LOAD RATINGS**
- 800W @ 120VAC standard ballast
- 1200W @ 277VAC standard ballast
- 3300W @ 277VAC electronic ballast
- 1500W @ 347VAC standard ballast

**DIMMING**
- 0-10V

**APPROVALS**
- Certified to CAN/CSA Std. C22.2 No 14
- Conforms to UL508
- Contains IC: 8254A-B1010SP0
- Contains FCC ID: W7Z-B1010SP0

**ENVIRONMENT**
- -40°C to +55°C (-40°F to +131°F)

**WARRANTY**
- Standard 1-year

---

*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth® SIG, Inc. and any use of such marks by Panasonic is under license. Other trademarks and trade names are those of their respective owners.*

**Designed in Canada • Assembled in China**
A Douglas Lighting Controls® wireless network operates within its own eco-system. However, there are applications that will use the wireless system as part of a complete building system and therefore need to connect to the Dialog® centralized lighting control network. In these instances, use the gateway device to communicate between the two systems.

The Douglas Lighting Controls Bluetooth® Dialog Gateway sends and receives wireless commands between our Bluetooth wireless mesh network and our Dialog centralized lighting control system. It is easily installed on a wall or ceiling or behind a wall or ceiling tile (not behind metal) with 2 screws and connects to the Dialog network with #18/2 wire, non-polarized power and data connection.

### Features
- Bluetooth® wireless technology
- #18/2 wire non-polarized Dialog® power/data network
- Easily installed using two screws (included)
- Dialog Terminal Connector (included)
- Plug 'N Control® simplicity

### Table
<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-GTWY-A</td>
<td>A Bluetooth enabled device for sharing information and commands between the Bluetooth wireless systems and the Dialog centralized system.</td>
</tr>
</tbody>
</table>
Douglas Lighting Controls Bluetooth® Dialog® Gateway

**FUNCTIONALITY**
The gateway provides a communication path between Douglas Lighting Controls Bluetooth devices and Douglas Lighting Controls Dialog network.

**SPECIFICATIONS**
- Dimensions (W x D x H): 96.3mm x 40mm x 20mm
- Material: Plastic
- Mounting: Screw onto hard surface
- Connection: Terminal plug (included) for 18/2 #wire
- LED: Status and factory reset

**CURRENT DRAW**
19mA

**WIRELESS RANGE**
150’ clear line of site. 50’ through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

**APPROVALS**
- Contains IC: 8254A-B1010SP0
- Contains FCC ID: W7Z-B1010SP0

**ENVIRONMENT**
- Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Operating Temperature: 32°F to 104°F (0°C to 40°C)
- Storage Temperature: 14°F to 140°F (-25°C to 60°C)

**WARRANTY**
Standard 1-year

*Patent Pending*
Dialog Room Controllers
Dialog® Room Controller is a stand-alone, distributed lighting control solution for offices, classrooms and defined spaces. The device incorporates 2 sections; the Dialog Room Controller and the Dialog Room Controller UL924 / CSA C22.2 No. 141 Relay Expansion Pack.

The Dialog Room Controller’s thoughtful design eliminates wiring complications found in current lighting control systems by mounting directly to junction boxes with the incorporated ½ inch chase nipples. We know that wiring devices is not always easy, but with Dialog Room Controller there’s an easier way. Color coded labels that correspond with wires and wiring information inside the wiring compartment clearly identify proper connections.

Out-of-the-box ease of installation and operation through Plug ‘n Control functionality means once the system is connected, your room is under control. With an easy installation process and the removal of commissioning challenges, the Dialog Room Controller is up and running quickly, and operating effectively to meet the requirements of ASHRAE 90.1 and California Title 24 installations.

Dialog Room Controller is part of a complete room control packaged “kit” that includes the Dialog Room Controller, Occupancy and Photo Sensors, and Wall Switches. The peripheral devices connect to the Room Controller through the easy to use, low cost, non-polarized, 2-wire (18/2) Dialog network.

Designated emergency lights are controlled by the UL924 / CSA C22.2 No. 141 Relay Expansion Pack. Under normal conditions these lights operate to the lighting requirements. In the event of power failure, emergency light mode is activated. Emergency lights operate at full brightness; wall switch and dimming functionality is disabled (an emergency/backup power source is required).

The Dialog Room Controller system can also be used in a centralized, fully networked Dialog system. Select the appropriate Kits, connect to the Dialog network controller and facility wide control capability is enabled. Advantages include global control and scheduling, faster installations, less long wire/conduit runs, and room-by-room commissioning before centralized network connections are completed.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRC-3160</td>
<td>Room Controller: Four relays, four independent dimming channels, connectivity to a Dialog or BACnet network</td>
</tr>
<tr>
<td>WUL-3924</td>
<td>UL924 Relay Expansion Pack</td>
</tr>
</tbody>
</table>

**Features**
- Plug ‘N Control® up to 6 different loads (lighting, receptacle, emergency lighting)
- Plug ‘N Control up to 4 dimming channels independent of lighting loads
- Installation directly to junction box
- Low cost, simple to install, polarity neutral 2-wire network
- Networkable with Dialog or BACnet IP

**ASHRAE 90.1 Compliant**

**California TITLE 24 Compliant**
For a complete overview of the Dialog Room Controller including wiring illustrations, kit specifications and ordering information please see the Dialog Room Controller Reference Guide.

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Dialog® Room Controller 2* is a stand-alone, distributed lighting control solution for offices, classrooms, and defined spaces. The systems are ideal for controlling lights and receptacles in specific areas of a building. The packaged systems are factory configured and include occupancy sensors, daylight sensors, and wall station switches to provide an out-of-the-box ready, Plug ‘N Control® system. A low voltage power and data network connects switches, occupancy, and daylight sensors to the controller. Power is connected from the controller to the lights, as are the 0-10V dimming connections. The complete system then offers ON/OFF and 0-10V dimming functionality using control signals from the sensors and switches.

With the specially designed Dialog Room Controller 2 wiring complications are minimized by mounting the controller directly to junction boxes using the incorporated ½ inch chase nipples. Color coded labels that correspond with wires and connection details inside the wiring compartment clearly identify proper connections. Connecting to the switches and sensors is even easier using our #18/2 power and data network. The network is non-polarized and follows a free topology architecture.

The Dialog Room Controller 2 system can also be used in a centralized, fully networked Dialog system. Connect the room controller to the Douglas Lighting Controls® Dialog centralized network and facility-wide control capability is enabled. Advantages include global control and scheduling, faster installations, fewer long wire/conduit runs, and room-by-room commissioning before centralized network connections are completed.

### Features
- Two relay circuits (20A each)
- Two independent dimming channels
- Shipped as Plug ‘N Control® out-of-the-box ready “kits”
- Color coded wires, labels and on-device wiring instructions
- Low cost, simple to install, non-polarized 2-wire network

### PART NUMBER | DESCRIPTION
| WRC-3260 | Two relay, two dimming channel room controller |

Class 2 Power Unit; Dry Location Use Only
For installation with Field Installed Conductors Rated for 60ºC (140ºF)
Use 18AWG 2 Wire for Low Voltage Wiring

ASHRAE 90.1 Compliant
INPUT
- 120/277/347VAC, 20A Max., 60Hz

OUTPUT
- 20A general use 120/277/347VAC
- 20A standard ballasts & tungsten loads 120/277VAC
- 15A standard ballasts 347VAC
- 16A electronic ballasts 120/277VAC
- 0.5HP 120/277VAC

RELAYS
- 2 (@ 20A each)

DIMMING
- 2 - 0-10V class 2 independent dimming channels
- 100 mA sinking current per channel

APPROVALS
- UL2043, UL508, UL1310
- CSA c22.2 NO. 14
- Plenum rated in USA and Canada

INSTALLATION
- Mounts to junction box via ½" chase nipple

ENVIRONMENT
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient operation temperature: 32°F to 100°F (0°C to 38°C)
- Plenum rated

For a complete overview of the Dialog Room Controller including wiring illustrations, kit specifications and ordering information, please visit www.douglaslightingcontrols.com/products/dialog_room_controller.

Subject to change without notice.                  *Patent Pending               CS-WHC-3260 Rev. 4/24/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Switch Stations - Dialog® Room Controller

**Features**
- 2-button, 4-button, and Dimmer & 1-button wall switch stations
- Connects via Dialog 2-wire, non-polarized data bus
- Factory configured and labeled
- Plug 'N Control® out-of-the-box

Dialog Room Controller Wall Switch Stations are digitally controlled switches that send control commands to the Dialog Room Controller through the Dialog 2-wire (#18/2), low voltage, non-polarized power and data bus. These attractive switches are factory configured and labelled for specific Dialog Room Controller Kits to make for true Plug 'N Control Out-of-the Box functionality. LED indicators show switch and dimming status. (Orange - ON, Blue – OFF).

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRC-DS-*</td>
<td>Dialog Room Controller Dimmer Station</td>
</tr>
<tr>
<td>WRC-ES-*</td>
<td>Dialog Room Controller Entry Station</td>
</tr>
<tr>
<td>WRC-OF-ES*</td>
<td>Dialog Room Controller Office Entry Station</td>
</tr>
<tr>
<td>WRC-OF-*</td>
<td>Dialog Room Controller Office Station</td>
</tr>
<tr>
<td>WRC-TS-1-*</td>
<td>Dialog Room Controller Teacher Switch Station</td>
</tr>
</tbody>
</table>

*White screwless faceplates are included with Dialog Room Controller Kits*

*placeholder for programming code*
Switch Stations - Dialog® Room Controller

FUNCTIONALITY
• Factory configured for ON/OFF, pre-set, and dimming control

CURRENT DRAW
• 3mA

POWER REQUIREMENTS
• Powered by Dialog 2-wire, non-polarized low voltage data bus

ENVIRONMENT
• 14°F to 140°F (-10°C to +60°C)
• Stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity

WARRANTY
• 1 year

*Patent Pending               Rev. 4/24/17

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Wall Station Sensor - Dialog® Room Controller

The Dialog® Room Controller Wall Station Sensor features Dual Technology (PIR* and ADI-Voice*) occupancy sensing and a photo sensor for daylight harvesting control. The lens provides 180° of sensing coverage and has a hardened design to minimize lens damage. A push button switch is provided and can be configured for ON/OFF or Toggle functionality. An adjustable time-out delay can be set for 3 seconds to 40 minutes.

Plug ‘N Control® ready, the sensor is part of a Dialog Room Controller system and connects to the Dialog Room Controller via our simple 2-wire, non-polarized low voltage (18/2 AWG) data/power bus, minimizing commissioning time. When in operation, the sensor will detect initial motion using PIR; then ADI-Voice is activated to work alongside the PIR to detect and maintain occupancy.

Typical Applications: offices and restrooms.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOSSDG1-P-T</td>
<td>Wall Station Sensor – Occupancy Mode</td>
</tr>
<tr>
<td>WOSSDG1-P-T-A</td>
<td>Wall Station Sensor – Occupancy Mode, Room A Type</td>
</tr>
<tr>
<td>WOSSDG1-P-T-B</td>
<td>Wall Station Sensor – Occupancy Mode, Room B Type</td>
</tr>
<tr>
<td>WOSSDG1-P-T-2A</td>
<td>Wall Station Sensor – Occupancy Mode, Room 2A Type</td>
</tr>
<tr>
<td>WOSSDG1-P-T-2B</td>
<td>Wall Station Sensor – Occupancy Mode, Room 2B Type</td>
</tr>
<tr>
<td>WVSSDG1-P-T</td>
<td>Wall Station Sensor – Vacancy Mode</td>
</tr>
<tr>
<td>WVSSDG1-P-T-A</td>
<td>Wall Station Sensor – Vacancy Mode, Room A Type</td>
</tr>
<tr>
<td>WVSSDG1-P-T-B</td>
<td>Wall Station Sensor – Vacancy Mode, Room B Type</td>
</tr>
<tr>
<td>WVSDDG1-P-T-2A</td>
<td>Wall Station Sensor – Vacancy Mode, Room 2A Type</td>
</tr>
<tr>
<td>WVSDDG1-P-T-2B</td>
<td>Wall Station Sensor – Vacancy Mode, Room 2B Type</td>
</tr>
<tr>
<td>WPSSDG1-P-T</td>
<td>Wall Station Sensor – Partial ON Mode</td>
</tr>
<tr>
<td>WPSSDG1-P-T-A</td>
<td>Wall Station Sensor – Partial ON Mode, Room A Type</td>
</tr>
<tr>
<td>WPSSDG1-P-T-B</td>
<td>Wall Station Sensor – Partial ON Mode, Room B Type</td>
</tr>
<tr>
<td>WPSSDG1-P-T-2A</td>
<td>Wall Station Sensor – Partial ON Mode, Room 2A Type</td>
</tr>
<tr>
<td>WPSSDG1-P-T-2B</td>
<td>Wall Station Sensor – Partial ON Mode, Room 2B Type</td>
</tr>
</tbody>
</table>

Occupancy Mode: Auto-ON / Auto-OFF
Vacancy Mode: Manual-ON / Auto-OFF
Partial ON Mode: Auto-ON 50% / Auto-OFF

PIR - Passive Infrared technology
ADI-Voice - Our proprietary microphonic technology
Wall Station Sensor - Dialog® Room Controller

**POWER**
- 10mA

**APPROVALS**
- Low voltage device
- ASHRAE 90.1 compliant
- CEC Title 24 compliant
- NYLL 48 compliant

**ENVIRONMENT**
- Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: 14°F to 140°F (-25°C to 60°C)

**WARRANTY**
- Standard 1-year

---

**Override Button**
On-board button for override and testing.

**Dialog Network**
Two screw terminals on back of switch for #18/2 non-polarized, power and data connection.

---

**D2-Wire**

---

DESIGNED IN CANADA • ASSEMBLED IN CHINA
Rev. 4/13/17
Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Ceiling Mount Occupancy Sensor - Dialog® Room Controller

The Dual Technology (ADI-Voice® & PIR) Occupancy or Vacancy Ceiling Sensors for Dialog® Room Controller kits provide the lowest profile ceiling sensors with 360° of coverage to turn lights ON or OFF based on occupancy. A tilting lens helps direct the sensor to or away from specific areas and the on-board timer adjustment can be set for delays from 3 seconds to 40 minutes. Smart Sense technology allows lights to be switched ON through motion or voice for up to 4 minutes after an unwanted OFF. The sensor includes an auxiliary relay for control of HVAC or BAS systems. Plug 'N Control ready, the sensor connects to the Dialog Room Controller via our simple 2-wire, non-polarized low voltage (18/2 AWG) data/power bus, minimizing commissioning time.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORSDG1-R-T</td>
<td>Dual Tech Occupancy Sensor Std Lens with Aux Relay</td>
</tr>
<tr>
<td>WORSDG1-R-T-A</td>
<td>Dual Tech Occupancy Sensor Std Lens with Aux Relay Room A Type</td>
</tr>
<tr>
<td>WVRSDG1-R-T-A</td>
<td>Dual Tech Vacancy Sensor Std Lens with Aux Relay Room A Type</td>
</tr>
<tr>
<td>WORSDG1-R-T-B</td>
<td>Dual Tech Occupancy Sensor Std Lens with Aux Relay Room B Type</td>
</tr>
<tr>
<td>WVRSDG1-R-T-B</td>
<td>Dual Tech Vacancy Sensor Std Lens with Aux Relay Room B Type</td>
</tr>
<tr>
<td>WVRSDG1-R-T</td>
<td>Dual Tech Vacancy Sensor Std Lens with Aux Relay</td>
</tr>
<tr>
<td>WVRSDG1-R-T-AE</td>
<td>Dual Tech Vacancy Sensor Std Lens with Aux Relay Room A Type, Emergency</td>
</tr>
<tr>
<td>WVRSDG1-R-T-BE</td>
<td>Dual Tech Vacancy Sensor Std Lens with Aux Relay Room B Type, Emergency</td>
</tr>
<tr>
<td>WORXDG1-R-T</td>
<td>Dual Tech Occupancy Sensor Xtd Lens with Aux Relay</td>
</tr>
<tr>
<td>WORXDG1-R-T-A</td>
<td>Dual Tech Occupancy Sensor Xtd Lens with Aux Relay Room A Type</td>
</tr>
<tr>
<td>WVRXDG1-R-T-A</td>
<td>Dual Tech Vacancy Sensor Xtd Lens with Aux Relay Room A Type</td>
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<tr>
<td>WORXDG1-R-T-B</td>
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<td>Dual Tech Vacancy Sensor Xtd Lens with Aux Relay Room B Type</td>
</tr>
<tr>
<td>WVRXDG1-R-T</td>
<td>Dual Tech Vacancy Sensor Xtd Lens with Aux Relay</td>
</tr>
<tr>
<td>WVRXDG1-R-T-AE</td>
<td>Dual Tech Vacancy Sensor Xtd Lens with Aux Relay Room A Type, Emergency</td>
</tr>
<tr>
<td>WVRXDG1-R-T-BE</td>
<td>Dual Tech Vacancy Sensor Xtd Lens with Aux Relay Room B Type, Emergency</td>
</tr>
</tbody>
</table>
Ceiling Mount Occupancy Sensor - Dialog® Room Controller

**FUNCTIONALITY**
- Occupancy (Auto ON/Auto OFF)
- Vacancy (Manual ON/Auto OFF)
- Proprietary ADI-Voice & Passive Infrared
- Timer Factory Setting: 10 minutes
- Timer Range: 3 seconds to 40 minutes
- Smart Sense: min. 15 seconds, max. 4 minutes

**CURRENT DRAW**
- 25mA

**POWER REQUIREMENTS**
- Powered by Dialog 2-wire, non-polarized low voltage data bus

**ENVIRONMENT**
- 14°F to 140°F (-10°C to +60°C)
- Stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity

**WARRANTY**
- 1 year

Dialog Ceiling Mount Sensors will fit a standard (2-1/8" deep) octagon box. The can also be attached with the included mounting ring. For octagon box installations, conduits should be attached to the sides with the larger wiring space.

**LENS RANGE AND COVERAGE PATTERNS**

- **Standard Range Lens (S)**
  - Use is to detect hand movements (desk)
  - Designed for a mounting height of 7-15ft

- **Extended Range Lens (X)**
  - Use to detect walking motion (open spaces)
  - Designed for a mounting height of 7-15ft

---

*Patent Pending               Subject to change without notice.                Rev. 4/26/17*

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
The indoor ceiling mount closed-loop-control (CLC) Daylight Sensor is an integral part of a Dialog® Room Controller system as it provides real-time light level input to support natural daylight harvesting. Natural Daylight Harvesting uses natural and in-room lighting to automatically provide a predetermined level of light in the room. This maximizes the use of available natural light while minimizing use of in-room lighting, thereby reducing energy consumption.

A tilting lens helps direct the sensor to, or away from, specific areas. Setting the light point on the Daylight Sensor is easily done with an on-board set-point dial. With only a set-point adjustment, the Dialog Room Controller system is Plug 'N Control ready right out-of-the-box by connecting to the Dialog Room Controller via our simple 2-wire, non-polarized low voltage (18/2 AWG) data/power bus, minimizing commissioning time.

### Features
- 0 – 65,000 lux
- Low profile
- 30° Tilt Lens
- Configuration Dial
- Plug 'N Control® out-of-the-box

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPP-INT</td>
<td>Interior Daylight Sensor Single Room</td>
</tr>
<tr>
<td>WPP-INT-1A</td>
<td>Interior Daylight Sensor Single Room A Type</td>
</tr>
<tr>
<td>WPP-INT-1B</td>
<td>Interior Daylight Sensor Single Room B Type</td>
</tr>
<tr>
<td>WPP-INT-2A</td>
<td>Interior Daylight Sensor Two Room A Type</td>
</tr>
<tr>
<td>WPP-INT-2B</td>
<td>Interior Daylight Sensor Two Room B Type</td>
</tr>
</tbody>
</table>
Ceiling Mount Daylight Sensor - Dialog® Room Controller

**FUNCTIONALITY**
- Natural Daylight Harvesting via closed loop control dimming
- Range: 0 to 65,000 lux

**CURRENT DRAW**
- 3mA

**POWER REQUIREMENTS**
- 150’ Clear line of site. 50’ through standard walls (distances may vary based on location and environment. Additional devices may be required at time of commissioning to ensure Bluetooth network integrity.)

**ENVIRONMENT**
- 14°F to 140°F (-10°C to +60°C)
- Stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity

**POWER**
- Powered by Dialog Room Controller via 2-wire, non-polarized low voltage (24Vac) data bus

**WARRANTY**
- 1 year

---

Dialog Ceiling Mount Sensors will fit a standard (2-1/8" deep) octagon box. The can also be attached with the included mounting ring. For octagon box installations, conduits should be attached to the sides with the larger wiring space.
The LCD Touch Screen Switch Station communicates with the Dialog Room Controller through the Dialog 2-wire, non-polarized low voltage (18/2) data bus. It is an alternative switch station for Dialog Room Controller systems. Use the LCD Touch Screen for classroom teacher switch stations or office switch stations.

**Features**
- Two-gang sized LCD switch station supports common
- Dialog® Room Controller switching functions
- Pre-programmed and configured for use with Dialog Room Controller systems
- Kit includes 120Vac 60Hz to 24Vac transformer
- Backlight switches OFF automatically after 10 seconds of inactivity

**PART NUMBER | DESCRIPTION**
--- | ---
WRC-LCD9261 | LCD Touch Screen Switch Station for Dialog Room Controller

**Dialog Room Controller Ecosystem**

- Daylight Sensor
- Occupancy/Vacancy Sensor
- NATURAL LIGHT
- LCD Touch Screen Switch Station
- Dialog Room Controller
- Entry Station
**KIT INCLUDES**

- LCD touch screen, face plate, 120Vac transformer

**LCD**
- Rated Voltage: 200mA 24Vac (from transformer)
- Signal Current: 15mA
- Maximum distance between transformer and the farthest LCD switch: 300ft.
- Applicable Wires: Power 0.9mm

**TRANSFORMER**
- WR-4040-120
- 120Vac Primary
- 24Vac Secondary
- 40VA steady draw, 40VA pulsed draw
Room Controller™

WRC-3160
WUL-3924

Installation Manual

*Patent Pending
(shown with UL924 Relay Expansion Pack)
WARNING!

SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODES

INDOOR USE ONLY

Risk of Electric Shock. More than one disconnect switch is required to de-energize the device before servicing. All Servicing should be performed by qualified service personnel. This unit has more than one power supply connection point. To reduce the risks of electric shock disconnect both the branch circuit breakers / fuses & emergency power supplies before servicing.

SAVE THESE INSTRUCTIONS

- READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
- Be aware that Line Voltage Connections may be 120Vac or 277Vac or 347Vac
- Do not use outdoors.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than intended use.
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1. INTRODUCTION

1.1. General Description

The Dialog Room Controller provides localized distributed lighting control for a specific application, defined space or room.

The product is factory configured to be used without the need for onsite programming prior to commissioning.

2. DESIGN FEATURES

- The Dialog Room Controller is plenum Class 2 power unit rated for indoor environments that are stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity with an Ambient Operation Temperature of 32°F to 100°F (0°C to 38°C).
- High voltage connections are pre-wired with colour coded, tinned, flying leads. The high voltage compartment is not accessible and has no serviceable components.
- Low voltage push-connect terminal blocks are labeled and colour coded.
- A ½" threaded chase nipple with locknut is integrated into the chassis for installation to standard size junction boxes.
- Two ½" knockouts and two break-away tabs allow direct wiring access to the low voltage compartment.
- A 120° opening lid is notched to stay in the open position to provide access to the low voltage compartment.
- A top-mounted bi-colour LED indicates device status and allows for easy device locating.
- Dialog Room Controller is a 24Vac data line source for use with the Dialog Dual Technology Occupancy Sensors, Daylight Sensors and Digital Wall Station Switches.
- Plug 'N Control™ ready out-of-the-box.
- Demand Response Ready.
Status LED

BACnet IP Ethernet Port

Dialog Network Connection (Centralized System)

0-10V dimming terminal block

½" knockout

Break-away tab

Break-away tab

Terminal block for local low voltage network

(低电压终端盖板已移除)
### 3. COMPATIBLE DEVICES

WRC-3160 works in conjunctions with the following Part Numbers:

<table>
<thead>
<tr>
<th>#</th>
<th>Device Type</th>
<th>Description</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dialog Room Controller</td>
<td>Digital 4 Channel ON/OFF Room Controller w/ Receptacle Control, BACnet</td>
<td>WRC-3160</td>
</tr>
<tr>
<td>2</td>
<td>Dialog Room Controller UL924 / Relay Expansion Pack</td>
<td>Digital 2 Channel UL924 Emergency Lighting Controller / Relay Expansion Pack</td>
<td>WUL-3924</td>
</tr>
<tr>
<td>3</td>
<td>Digital Occupancy Sensor</td>
<td>Recessed Ceiling Standard Range w/ Time Delay Dial &amp; Aux Relay, No Photo</td>
<td>WORSDBG1-R-T</td>
</tr>
<tr>
<td>4</td>
<td>Digital Occupancy Sensor</td>
<td>Recessed Ceiling Extended Range w/ Time Delay Dial &amp; Aux Relay, No Photo</td>
<td>WORXDBG1-R-T</td>
</tr>
<tr>
<td>5</td>
<td>Digital Vacancy Sensor</td>
<td>Recessed Ceiling Standard Range w/ Time Delay Dial &amp; Aux Relay, No Photo</td>
<td>WVRSDG1-R-T</td>
</tr>
<tr>
<td>6</td>
<td>Digital Vacancy Sensor</td>
<td>Recessed Ceiling Extended Range w/ Time Delay Dial &amp; Aux Relay, No Photo</td>
<td>WVRXDBG1-R-T</td>
</tr>
<tr>
<td>7</td>
<td>Closed Loop Daylight Sensor</td>
<td>Interior Closed Loop</td>
<td>WPP-INT</td>
</tr>
<tr>
<td>8</td>
<td>1 Channel Dimmer &amp; Switch</td>
<td>Digital Dimmer &amp; Switch, 1 Channel</td>
<td>WSD-3501</td>
</tr>
<tr>
<td>9</td>
<td>1 Button Switch</td>
<td>Digital 1 Gang 1 Button Switch</td>
<td>WSW-3511</td>
</tr>
<tr>
<td>10</td>
<td>2 Button Switch</td>
<td>Digital 1 Gang 2 Button Switch</td>
<td>WSW-3512</td>
</tr>
<tr>
<td>11</td>
<td>3 Button Switch</td>
<td>Digital 1 Gang 3 Button Switch</td>
<td>WSW-3513</td>
</tr>
<tr>
<td>12</td>
<td>4 Button Switch</td>
<td>Digital 1 Gang 4 Button Switch</td>
<td>WSW-3514</td>
</tr>
<tr>
<td>13</td>
<td>8 Button Switch</td>
<td>Digital 1 Gang 8 Button Switch</td>
<td>WSW-3518</td>
</tr>
</tbody>
</table>
4. SPECIFICATIONS

4.1. Mounting
- WRC-3160 is designed to be mounted to an electrical junction box. Integrated ½” threaded chase nipples allow for easy mounting to junction box. Please follow wiring schematics as shown in this Instruction Manual.

4.2. Power
- Line Voltage: 120/277/347Vac
- Frequency: 60Hz

4.3. Inputs:
- 24Vac Dialog Low Voltage Control

4.4. Output Power Supply:
- Low Voltage: 24Vac ±25% source.
- Frequency: 60Hz
- Current: 250mA

4.5. Contact Ratings
- 20A Suitable for General Purpose Loads @ 120/277/347Vac
- 20A Suitable for Standard Ballasts & Tungsten Loads @ 120/277Vac
- 15A Suitable for Standard Ballast Only @ 347Vac
- 16A Suitable for Electronic Ballasts @ 120/277Vac
- 0.5HP @ 120/277Vac

4.6. Operation Environment
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operation Temperature: 32°F to 100°F (0°C to 38°C)
- Plenum Rated

4.7. Storage temp:
- -14° to 140°F (-25° to 60°C)

4.8. Approvals:
- CAN/CSA Std. C22.2 No. 14
- UL 508
- UL1310 Standard
- UL2043 Plenum Rating
- ASHRAE 90.1 2010 Compliant
- California Energy Commission Title 24 Compliant
- NY Local Law 48 Compliant
5. DIMENSIONS
6. INSTALLATION FEATURES

- Electrical rough-in can be done before devices arrive on-site (see installation examples below)
- Lightweight chassis allows for the device to be installed directly onto standard 4”x4” square metal junction boxes using existing knockouts.
- Distance between the ½” chase nipples on WRC-3160 and WUL3924 are spaced to fit into existing 4”x4” square metal junction box knockouts
- Chase nipples include locknuts
- WRC-3160 should be installed with either rigid metallic conduit (as shown below) or with flexible metallic conduit. Not intended for use with Rigid Non-Metallic Conduit.

7. INSTALLATION DIAGRAMS

Basic 1.0

Neutral not shown - these illustrations are for reference purposes only. For site installations, please review Kit wiring diagrams and follow local and national electrical codes.
Basic + Emergency 2.0

Neutral not shown - these illustrations are for reference purposes only. For site installations, please review Kit wiring diagrams and follow local and national electrical codes.

Basic + Receptacle 3.0
Basic + Receptacle + Emergency 4.0

Emergency (Remote Installation) 5.0
8. INSTALLATION

1. Install Dialog Room Controller chase nipples through a 1/2” knockout in standard 4"x4" square metal junction box
2. Attach and tighten locknut
3. If the installation requires the UL924 Relay Expansion Pack WUL-3924, (connected to WRC-3160 at factory), a second standard 4"x4" square metal junction box is needed (see installation examples 3.0 or 4.0 above)
4. Emergency Relay Expansion Pack can be remotely located (see installation example 5.0)
5. Install peripheral devices and run 18/2 data line back to Dialog Room Controller

9. WIRING AND START-UP

**CAUTION**

Risk of Electric Shock. More than one disconnect switch is required to de-energize the device before servicing. All Servicing should be performed by qualified service personnel. This unit has more than one power supply connection point. To reduce the risks of electric shock disconnect both the branch circuit breakers / fuses & emergency power supplies before servicing.

Dialog Room Controller is a 24Vac data line source for use with the Dialog Dual Technology Occupancy Sensors, Daylight Sensors and Digital Wall Station Switches. All switches or loads required to be supported by the sensor must be included in the loading capacity of the Dialog Room Controller. Controller can support up to 100mA of peripheral devices.

The Dialog Room Controller is equipped with #12AWG tined leads.

Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

When using field-installed conductors ensure a 60ºC minimum rating.

Wire leads are color coded to match circuit labels. Follow circuit wiring information found on the inside of low voltage terminal door.

1. Connect power, load, and control wiring as shown on appropriate Kit Wiring Diagram
2. Power up system
3. Wait 15 seconds for system to start-up and run system checks
4. Check LED status light
5. When is Solid Green or Flashing Green, test relays with Blue relay test buttons to confirm intended load control
   a. If LED not Solid Green or Flashing Green, see LED Status Indicators (Section 9)
6. Installation & configuration complete!

Wiring Information - Low Voltage Compartment Door

![Wiring Diagram]

Wiring Information – Low Voltage Terminal Blocks

![Terminal Blocks Diagram]
10. CENTRALIZED SYSTEM

The Dialog Room Controller can be integrated into a centralized Dialog system for global scheduling and control. When using Dialog Room Controllers in a centralized system please be aware of the following:

- The Dialog centralized controller (WLC-3150) is programmed to recognise the Dialog Room Controller (WRC-3160)
- The Dialog Room Controller is factory addressed by setting the addressing DIP switches

DIP Switch Addressing

<table>
<thead>
<tr>
<th>DIP</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binary</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>16</td>
<td>32</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Addressing is done by moving DIP switches up.

E.g. For address 10, DIP 2 (value=2) and DIP 4 (value=8) are in up position (2+8=10). The central controller (WLC-3150) is then programmed to control address 10. The WUL-3924 will take the next address when it is used with WRC-3160.

11. BACNET

BACnet Exposed Objects Description:

1 x Binary Input (enumerated) Binary Input 0 (Read; Write when Out Of Service)
NAME: Demand Response Status 1
Possible values -> Active or Inactive.

1 x Binary Value (enumerated) Binary Value 0 (Read & Write)
NAME: Demand Response Control 1
Possible values -> Active or Inactive.

4 x Analog Inputs (percent) Analog Input 0 to 3 (Read; Write when Out Of Service)
NAME: Individual Dimming Status 01-1 to Individual Dimming Status 01-4
Possible values -> 0 to 100 %.

4 x Analog Values (percent) Analog Value 0 to 3 (Read & Write)
NAME: Individual Dimming Control 01-1 to Individual Dimming Control 01-4
Possible values -> 0 to 100 %.

2 x Analog Inputs (luxes) Analog Input 4 and 5 (Read; Write when Out Of Service)
NAME: Local Photo Sensor Status 1 and Local Photo Sensor Status 2
Possible values -> 0 to 65535.

6 x Multi-State Inputs (uint) Multi-State Input 0 to 5 (Read; Write when Out Of Service)
NAME: Individual Status 1 to Individual Status 6
Possible values -> 1 = OFF
2 = ON
3 = NA

6 x Multi-State Values (uint) Multi-State Value 0 to 5 (Read & Write)
NAME: Individual Control 1 to Individual Control 6
Possible values -> 1 = OFF
2 = ON
3 = NA

29 x Multi-State Inputs (uint) Multi-State Input 6 to 34 (Read; Write when Out Of Service)
NAME: Occupancy Sensor for group 100 to 128
Possible values -> 1 = UNOCCUPIED
2 = OCCUPIED
3 = NOT USED

**BACnet Protocol Implementation Conformance Statement**

Date: January 28th, 2015
Vendor Name: Douglas Lighting Controls
Product Name: BACnet IP Dialog Single Room Controller
Product Model Number: WRC-3160
Application Software Version: 1.0.0 Firmware Revision: 1.0.0 BACnet Protocol
Revision: 10

**Product Description:**
This product allows controlling the Dialog Room Controller outputs (4-6) and dimmers (4)
and gets their status from a BACnet system network. It allows getting the status of photo-sensors
and the occupancy sensors.

**BACnet Standardized Device Profile (Annex L):**
- BACnet Application Specific Controller (B-ASC)
- BACnet Smart Sensor (B-SS)
- BACnet Smart Actuator (B-SA)

**BACnet Interoperability Building Blocks Supported (Annex K):**
- K.1.2 BIBB – Data Sharing – Read Property-B (DS-RP-B)
- K.1.4 BIBB – Data Sharing – Read Property Multiple-B (DS-RPM-B)
- K.1.8 BIBB – Data Sharing – Write Property-B (DS-WP-B)
- K.1.10 BIBB – Data Sharing – Write Property Multiple-B (DS-WPM-B)
- K.5.2 BIBB – Device Management – Dynamic Device Binding-B (DM-DDB-B)
- K.5.4 BIBB – Device Management – Dynamic Object Binding-B (DM-DOB-B)
- K.5.6 BIBB – Device Management – Dynamic Communication Control-B (DM-DCC-B)
- K.5.16 BIBB – Device Management – Reinitialize Device-B (DM-RD-B)

**Segmentation Capability:**
None
Standard Object Types Supported:

- **Device Object**
  - Dynamically Creatable: No
  - Dynamically Deletable: No
  - Supported Properties: All Required
  - Optional Properties: Location
    - Description
  - Writable Properties: Object_Identifier
    - Object_Name

- **Binary Input**
  - Dynamically Creatable: No
  - Dynamically Deletable: No
  - Supported Properties: All Required
  - Optional Properties: Description
    - Inactive_Text
    - Active_Text
  - Writable Properties: Out_Of_Service
    - Present_Value if Out_Of_Service = True

- **Binary Value**
  - Dynamically Creatable: No
  - Dynamically Deletable: No
  - Supported Properties: All Required
  - Optional Properties: Description
    - Inactive_Text
    - Active_Text
  - Writable Properties: Out_Of_Service
    - Present_Value
    - Relinquish Default

- **Analog Input**
  - Dynamically Creatable: No
  - Dynamically Deletable: No
  - Supported Properties: All Required
  - Optional Properties: Description
    - Reliability
  - Writable Properties: Out_Of_Service
    - Present_Value if Out_Of_Service = True

- **Analog Value**
  - Dynamically Creatable: No
  - Dynamically Deletable: No
  - Supported Properties: All Required
  - Optional Properties: Description
  - Writable Properties: Out_Of_Service
Present_Value  
Relinquish Default

[Multi State Input]
Dynamically Creatable: No  
Dynamically Deletable: No  
Supported Properties: All Required

Optional Properties:  
Description  
State Text

Writable Properties:  
Out_Of_Service  
Present_Value  if  Out_Of_Service  = True

[Multi State Value]
Dynamically Creatable: No  
Dynamically Deletable: No  
Supported Properties: All Required

Optional Properties:  
Description  
State Text

Writable Properties:  
Out_Of_Service  
Present_Value  
Relinquish Default

For each standard Object Type supported the following apply:
1) Does not support CreateObject  
2) Does not support DeleteObject  
3) Does support optional properties  
4) Additional writeable properties exist  
5) No proprietary properties exist  
6) Range restrictions exist

Data Link Layer Options:  
BACnet/IP, 'DIX' Ethernet

Device Address Binding:  
Not supported

Character Sets Supported:  
Indicating support for multiple character sets does not imply that they can all be supported simultaneously.
  ANSI X3.4  IBM™/Microsoft™ DBCS  ISO 8859-1  
  ISO 10646 (UCS-2)  ISO 10646 (UCS-4)  JIS X 0208

### 12. LED STATUS INDICATOR

The WRC-3160 has a locator and system status bi-color LED on the top surface. There are also 2 LEDs (Green and Orange) on the Ethernet connector.
### Status LED

<table>
<thead>
<tr>
<th>Status LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green – Solid</td>
<td>Daylight Sensor address 0.1 is connected to provide 2 zone CLC</td>
</tr>
<tr>
<td>Green – Blinking</td>
<td>Daylight Sensor address 0.1 and 0.2 are connected to provide 2 zone CLC</td>
</tr>
<tr>
<td>Green/Red - Blinking</td>
<td>Daylight Sensor is NOT connected</td>
</tr>
<tr>
<td>Red – Solid</td>
<td>Incorrect Wiring or a Short</td>
</tr>
<tr>
<td>Red – Blinking</td>
<td>Dialog downstream is failing to drive the bus</td>
</tr>
</tbody>
</table>

### Ethernet LED

<table>
<thead>
<tr>
<th>Ethernet LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blinking</td>
<td>Ethernet Initializing (during start-up for 30 seconds)</td>
</tr>
<tr>
<td>Green – Solid</td>
<td>Ethernet Initialized</td>
</tr>
<tr>
<td>Green – Blinking</td>
<td>BACnet transmitting data</td>
</tr>
<tr>
<td>OFF</td>
<td>Ethernet failed to initialized</td>
</tr>
</tbody>
</table>
13. KIT WIRING DIAGRAMS

Kit#1
Kit #2

Dialog Room Controller

Kit Ordering Numbers:
DRC01PS-1S11-12-E
DRC01PS-1X11-12-E
DRC01PS-1S31-12-E
DRC01PS-1X31-12-E

Receptacle R4

0-10V Dimming
(1 amp per channel)

Building Control
via Ethernet or Dialog Network

Occupancy Sensor
(1 to 4)

Daylight Sensor

Control
YELLOW
RED
BLUE
WHITE
RED
BLUE
NEUTRAL
GROUND

120/277/347V Distribution Cabinet
(120V/30A)

Lighting
120/277/347V Distribution Cabinet
(30A)

Emergency
120/277/347V Distribution Cabinet
(30A)

a

Installation Guide WRC-3160 & WUL-3924 2016-06-17
Douglas Lighting Controls
www.douglaslightingcontrols.com

Kit #2
Kit #6

Diagram of the Dialog Room Controller Kit 6.

Kit Ordering Numbers:
- DRC01PM-1S12-12-E
- DRC01PM-IX12-12-E
- DRC01PM-1S32-12-E
- DRC01PM-IX32-12-E

Diagram showing the layout of the controller, including wiring connections and sensor placements.

Legend:
- Purple
- Red
- Yellow
- Blue
- White
- Black
- Orange
- Grey

Connections:
- 120/277/347 Vac Distribution Cabinet (by Others)
- Lighting 120/277/347 Vac Distribution Cabinet (by Others)
- Emergency 120/277/347 Vac Distribution Cabinet (by Others)
- Building Control via X-channel or Dialog Harman.
Kit #11

Dialog Room Controller

Kit Ordering Numbers:
DRC01NS-1511-03-N
DRC01NS-1X11-03-N
DRC01NS-1531-03-N
DRC01NS-1X31-03-N

Receptacle R4

120V Vac
Distribution Cabinet
(by Others)

Lighting
120/277/347V Vac
Distribution Cabinet
(by Others)

Building Control via BACnet IP of Dialog Network

0-10V Dimming (1/8 per channel)

Local Room-Dialline (1/8)

Entry Station

Occupancy Sensor (Up To 4)

Dwell Sensor

Purple: Lighting Load 1
Red: Lighting Load 2
Yellow: Lighting Load 3
Blue: (Switched Receptacle) Load 4
Blue: Receptacle Hot
White: Neutral
Black: Lighting Hot
Kit #13
Kit #14
## EDITS

<table>
<thead>
<tr>
<th>Version</th>
<th>Page</th>
<th>Edits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-06-17</td>
<td>15</td>
<td>Changed WUL-3150 to WLC-3150</td>
</tr>
<tr>
<td>2016-06-17</td>
<td>15</td>
<td>Added: “The WUL-3924 will take the next address when it is used with WRC-3160.”</td>
</tr>
<tr>
<td>2016-06-17</td>
<td>15</td>
<td>Added: BACNET - Section 11</td>
</tr>
<tr>
<td>2016-06-17</td>
<td>31</td>
<td>Corrected kit part numbers to <strong>03-E</strong> from <strong>30-E</strong></td>
</tr>
</tbody>
</table>
Diversa Sensors
## ORDERING INFORMATION

Sample Number: WOSSDU2-DPR-LV-W

<table>
<thead>
<tr>
<th>Type</th>
<th>Lens</th>
<th>Power</th>
<th>Options</th>
<th>Colour (if req.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B – High Bay</td>
<td>B – High Bay</td>
<td>U – 120/277VAC</td>
<td>PR – Photo Sensor &amp; Aux. Relay</td>
<td>B – Black</td>
</tr>
<tr>
<td>Options</td>
<td>Options</td>
<td>Options</td>
<td>Colour (if req.)</td>
<td></td>
</tr>
<tr>
<td>DPR – Dimming, Photo Sensor &amp; Aux. Relay</td>
<td>Options</td>
<td>Colour (if req.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Environment</td>
<td>Colour (if req.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L – Low Temp/High Humidity</td>
<td>V – Vandal Resistant</td>
<td>N – Standard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- Not all options available. Please consult Douglas Lighting Controls for availability.
## Specifications

### WOR SERIES
**Recessed Ceiling Sensors**

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**Additional Feature**

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### LOW VOLTAGE

**Inputs:** 24Vac, Class 2 Low Voltage Source, 60Hz  
**Outputs:** Diode Pulse, 0-10V Dimming, Auxiliary Relay  
**Current Draw:** 9.5 mA Standard, 14.0 mA with Auxiliary Relay

### LINE VOLTAGE

**Power:** 120/277Vac or 347Vac, 60Hz  
**Contact Rating:** 120Vac, 800W; 277Vac, 1200W; 347Vac, 1500W  
**Power Consumption:** 5.7 mA  
**Certification:** Certified to applicable UL & CSA standards

### WOW SERIES
**Corner Mount Sensors**

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**LOW VOLTAGE**

**Inputs:** 24Vac, Class 2 Low Voltage Source, 60Hz  
**Outputs:** Diode Pulse, 0-10V Dimming, Auxiliary Relay  
**Power Consumption:** 9.5mA Standard, 14.0mA with Auxiliary Relay

**WOW Series Lens Range and Coverage Patterns**

### LENS OPTIONS

- **S** = Standard  
- **X** = Extended range  
- **B** = High Bay  
- **C** = Corner  
- **L** = Large Area
### WOS SERIES
#### Wall Switch Sensors

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<th>Dual Technology (PIR &amp; ADI-Voice)</th>
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<th>120/277Vac</th>
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### LOW VOLTAGE

- **Inputs:** 24Vac, Class 2 Low Voltage Source, 60Hz
- **Outputs:** Diode Pulse, 0-10V Dimming, Auxiliary Relay
- **Power Consumption:** 9.5mA Standard, 14.0mA with Auxiliary Relay

### LINE VOLTAGE

- **Power:** 120/277Vac or 347Vac, 60Hz
- **Contact Rating:** 120Vac, 800W; 277Vac, 1200W; 347Vac, 1500W
- **Power Consumption:** 0.4 mA
- **Certification:** Certified to applicable UL & CSA standards

### WOR Series Lens Range and Coverage Patterns

#### Standard Range Lens

- **Top View**
- **Extended Range Lens**
- **High Bay Lens**

#### WOS Series Lens Range and Coverage Patterns

- **Top View**
- **Side View**
Features

- 102/277Vac line voltage, dual technology (PIR & ADI-Voice) Occupancy/Vacancy sensor
- Highly configurable through on-board switches and Infrared Setting Unit
- 360° coverage with tilting lens for directional sensing
- A self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.

Operation

Line voltage sensors draw control power directly from the lighting circuit they are intended to control. When in operation the sensor will detect initial motion using PIR; once motion is detected, the internal contact will close. ADI-Voice is then activated to work alongside PIR to maintain the occupied condition as long as people are within the sensing range.
Wiring Instructions

The WOR Series Line Voltage sensors are equipped with #14 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Sensor Settings

Programming - IR / Manual Setting
Programming can be done either with the DIP switches and dials on-board the device or with the WIR-3110 setting unit. For more details and additional options please see the “WIR-3110 Manual”

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then is activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. An increase in natural light will not force the lights off but as the ambient light level drops the lights will turn on automatically.

Multi-Level Photo Sensing (2-Pole w/ Photo Option)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the primary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting.
**INSTALLATION**

**Installing in Smaller Room (Standard Lens)**
- Locate the sensor near the entrance door wall to prevent it from viewing out into the hallway.
- The lens can rotate, allowing the sensor to be pointed toward the area in front of the entrance door.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor’s maximum PIR range.

**Typical Enclosed Office**

**Installing in Larger Room (Extended Lens)**
- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27ft in and over (A & B) or in dead center of room.
- Tilt the lens to aim the detection zone to the bottom of the door. (C)
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.

**Standard Lens (S)**
- Optimal usage is to detect small motions such as hand movements.
- Designed for a mounting height of 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

**Extended Lens (X)**
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

**Hi - Bay Lens (B)**
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of up to 40ft.
- PIR Only.
INSTALLATION & WIRING DIRECTIONS

Installation
Mounting of the device requires a 2-1/8" deep or more, octagonal junction box. Install by recessing the device into the octagon box; lining up the mounting holes and securing it using the screws provided. If too shallow, use the spacer ring is provided.

Wiring

CAUTION

TURN POWER OFF AT THE CIRCUIT BREAKER BEFORE WORKING WITH OR NEAR HIGH VOLTAGE

The WOR Series Line Voltage sensors are equipped with #14 AWG stranded leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations; for installation with field-installed conductors of 60ºC minimum rating.

DIP Switches

A bank of eight DIP switched and two rotating controls can be used to manually set up and configure the sensor.

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*Available in 2-Pole models (-2) only
Installation Guide

Diversa Occupancy & Vacancy Sensors - Recessed Ceiling, Passive Infrared (PIR), 120/277Vac

PART NO.
WDR503 P-IN Standard lens, PIR, 120/277Vac, 2-pole, photo sensor
WDR504 P-IN Extended range lens, PIR, 120/277Vac, 2-pole, photo sensor
WDR505 P-IN High Bay lens, PIR, 120/277Vac, 2-pole, photo sensor

FEATURES
- Commercial grade components for long term reliability
- Straightforward wiring for quick installation
- Factory configured for the most common applications
- DIP switches and dials for advanced functionality
- Photo Sensor for Natural Daylight control

Operation
Diversa 120/277Vac sensors draw control power directly from the lighting circuit they are intended to control. When in operation the sensor will detect initial motion using Passive Infrared (PIR); once motion is detected, the internal contact will close. Motion through PIR is used to maintain the occupied condition as long as occupants remain within coverage range of Sensor.

Wiring Instructions
Diversa 120/277Vac sensors include #14AWG wiring leads. Use appropriate sized wire nuts for connecting wires.

CAUTION: Turn power off at the circuit breaker before working on sensor. According to NEC 240.8(d), if the branch circuit breaker is used as the main switch for a fluorescent lighting circuit, the circuit breaker should be marked SHD. All installations should be in compliance with National Electric Code (NEC) and all state, provincial, federal, and local codes.

Sensor Location Guidelines
To optimize the performance of Diversa Sensors, please review the coverage pattern, range, and model to match with the application. Room dynamics will change when people and furniture are occupying the space.

Sensor Location Guidelines for “P” models
- Ensure that the sensor is at least 30 inches away from air handlers/registers and not pointed directly at windows
- Sensor Location Guidelines for “P” models
  - Place outside the direct cone of light from fixtures and between 3 to 12 feet from a window
  - As close as possible to the fixture being controlled
  - Above the least illuminated space in the work area
  - Away from lighting that is not being controlled by the sensor

Extended Lens for Larger Rooms
- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27” is or in dead center of room
- Lift the lens to aim the detection zone to the bottom of the door.
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of 7-15’.

Specifications
- Power : 120/277Vac
- 60Hz
- Contact Ratings
  - 120Vac - 800W
  - 277Vac - 1200W
- Power Consumption
  - 5.7 mA
- Approvals
  - Certified to UL 508, UL 244A, CSA C22.2 #14

Environment
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operating Temperature: 32°F to 104°F (0°C to 40°C)
- Storage Temperature: -14°F to 140°F (-25°C to 60°C)
- Use a 2 1/8” or more, deep box. If the box is less, use the spacer ring.

Contact Ratings
- 120Vac - 800W
- 277Vac - 1200W
- Power Consumption
- 5.7 mA
- Approvals
- Certified to UL 508, UL 244A, CSA C22.2 #14

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Diversa by Douglas Lighting Controls
General Programming Instructions
This covers basic programming using the onboard DIP and Dial switches.

Factory Defaults
All DIP switches in down position. Time delay: 10 minutes, Natural Daylight level: 50% (200 lux).

**NOTE**
Diversa Occupancy Sensors with a “P” in the model number contain a Photo Sensor that is controlled by DIP 6. The factory default for Natural Daylight Mode = ENABLED (DIP 6 DOWN). This mode disables the Manual Override Button. To test sensor functionality, you may need to disable Natural Daylight Mode (DIP 6 UP) to test sensor functionality.

- Start with the PIR Sensitivity at Medium (DIP 5 DOWN)
- To set the light level at which you want to inhibit the sensor from turning ON, rotate Light Level Dial to adjust the light level
- To enable Roommode, ensure that DIP 8 is UP. In this mode Pole 2 will remain on 50% longer than Pole 1 (Time is set with the Time Dial) and Pole 2 cannot be Photo Inhibited

DIP Switch Modes
DIP 1 - PIR Detection LED
LED on sensor’s PIR window flashes GREEN when PIR detects motion. LEDs can be turned OFF with DIP switch. Sensor continues to function.

DIP 2 - Walk-Through Mode
When Enabled and Occupancy switches lights to ON and sensor does not detect motion after 30 seconds of light ON, an OFF Time Delay of 3 minutes is used (OFF Time Delay must be greater than 3 minutes). If motion is detected after 30 seconds of light ON, the configured OFF Time Delay is followed.

DIP 3 - Manual Override
Manual Override Button can be disabled with DIP switch to prevent manual ON/OFF.

DIP 4 - Sensor Mode
Vacancy Mode - Lights must be turned ON manually when entering a room and are automatically turned OFF when occupancy no longer detected. Maximizes energy savings because lights are only turned on when lighting is required.

Occupancy Mode - Automatically turns lights ON when occupancy is detected and turns lights OFF when occupancy is no longer detected. This is a very convenient mode as lighting controls never have to be touched. Because lights are always turned on when occupancy is detected regardless of the need for lighting, this is less energy efficient than Vacancy Mode.

DIP 5 - PIR Sensitivity
Can be moved from Medium sensitivity (default) to High sensitivity if sensor is not recognizing Occupancy.

DIP 6 - Natural Daylight Mode (“P” models)
When ENABLED, lights ON when Occupancy detected AND daylight level is below Light Level Dial setting. With lights ON, an increase in daylight above the Light Level Dial setting will not force lights OFF.

DIP 7 - Not Used

DIP 8 - Roommode (2-pole models)
Pole 1 and Pole 2 are set to synchronize to the same Photo and Time Delay settings. With Roommode = Offset, Pole 2 will activate at the same moment as Pole 1 when Occupancy detected, however, Pole 2 will be offset so that OFF delayed 50% longer than Pole 1. (e.g. Light is Pole 1 and Fan is Pole 2. Fan would stay ON 50% longer than light).

Auto Time Mode
Activated when Time Delay Dial is set to Auto Time. Red LED indicator will be ON. In this mode, time delay will start automatically set by the sensor learning occupancy patterns.

Test Mode
Activated when Time Delay Dial is set to TEST. Test Mode LED will flash red for 5 minutes, providing a short Time Delay when testing the installation to determine if the sensor is working as intended or requires adjustments. After 5 minutes, LED will stop flashing and Time Delay reverts to Factory Time Delay setting (10 minutes).

DIP Switches & Dial Settings

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>UP</th>
<th>DOWN</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PIR LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>2</td>
<td>Walk-Through Mode</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>3</td>
<td>Manual Override</td>
<td>Disabled</td>
<td>Enabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>4</td>
<td>Sensor Mode</td>
<td>Manual ON (Vacancy)</td>
<td>Auto ON (Occupancy)</td>
<td>DOWN</td>
</tr>
<tr>
<td>5</td>
<td>PIR Sensitivity</td>
<td>High</td>
<td>Medium</td>
<td>DOWN</td>
</tr>
<tr>
<td>6</td>
<td>Natural Daylight Mode (“P” models)</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>7</td>
<td>NOT used</td>
<td>Inactive</td>
<td>Inactive</td>
<td>DOWN</td>
</tr>
<tr>
<td>8</td>
<td>Roommode (2-pole models)</td>
<td>Offset</td>
<td>Synchronized</td>
<td>DOWN</td>
</tr>
</tbody>
</table>

Factory DIP & Dial Settings

Troubleshooting
Before calling Technical Support, please review the following Troubleshooting Guide.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Recommended Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensor is set to Manual ON Mode.</td>
<td>Check DIP 4 - Move DOWN for Auto ON.</td>
<td></td>
</tr>
<tr>
<td>Sensor is set to Natural Daylight Mode (Photo Inhibit) and Sufficient Natural Light is Present.</td>
<td>This only applies to Photo Sensor “P” models. Check DIP 6 - If DOWN, sensor is in Natural Daylight Mode, therefore lights will only turn ON if there is insufficient natural daylight. Rotate the Light Level Dial clockwise pressing the Manual Override Button until the Lights turn ON. Natural Daylight mode can be disabled by moving DIP 6 UP.</td>
<td></td>
</tr>
<tr>
<td>Power has been interrupted or wiring connection is intermittent.</td>
<td>Start for OFF Time Delay to count down, then move to OFF. Power has been interrupted or wiring connection is intermittent.</td>
<td></td>
</tr>
<tr>
<td>Sensor is set to Natural Daylight Mode (Photo Inhibit) and Sufficient Natural Light is Present.</td>
<td>Check the wiring diagram. Ensure ground is connected with DIP 1 DOWN, check for motion detection by waving hand in front of sensor lens. Activation LED will blink green.</td>
<td></td>
</tr>
<tr>
<td>Sensor is set to Natural Daylight Mode (Photo Inhibit) and Sufficient Natural Light is Present.</td>
<td>Check the wiring diagram. Ensure ground is connected with DIP 1 DOWN, check for motion detection by waving hand in front of sensor lens. Activation LED will blink green.</td>
<td></td>
</tr>
<tr>
<td>Sensor is in Auto Time Mode.</td>
<td>If the Sensor is in AUTO Mode, it may take longer than expected to turn the lights off. Set the Time Delay to 5 minutes and leave space to determine if the Sensor is functioning. The maximum Time Delay is 30 minutes.</td>
<td></td>
</tr>
<tr>
<td>Sensor is being activated by a heat source other than occupant.</td>
<td>Sensor may be detecting heat from HVAC, registers, or other heat sources. Check Installation location for heat source. Reduce PIR sensitivity by moving DIP 5 DOWN. More sensor location - see guidelines.</td>
<td></td>
</tr>
<tr>
<td>Manual Override Button has been disabled.</td>
<td>Move DIP 3 DOWN to enable Manual Override Button.</td>
<td></td>
</tr>
</tbody>
</table>

Diversa by Douglas Lighting Controls
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## Features
- Wall Switch occupancy sensor provides 180° coverage to maximize the sensor area.
- The dual-tech sensor utilizes ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.
- A Self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- Can be programmed by on-board DIP switches and dials or an IR Setting Unit for added convenience, especially during commissioning.

## Operation
Line voltage sensors draw control power directly from the lighting circuit they are intended to control. When in operation the sensor will detect initial motion using PIR; once motion is detected, the internal contact will close. ADI-Voice is then activated to work alongside PIR to maintain the occupied condition as long as people are within the sensing range.

## Specifications
- **Power**
  - 120/277 VAC
  - 60 Hz
- **Contact Ratings**
  - 120 VAC - 800W
  - 277 VAC - 1200W
- **Power Consumption**
  - 400 microamps
- **Approvals**
  - Certified to UL 508, UL244A, CSA C22.2 #14
- **Environment**
  - Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
  - Ambient Operation Temperature: 32°F to 104°F (0°C to 40°C)
  - Storage Temperature: -14°F to 140°F (-25°C to 60°C)

## Dimensions & Mounting
- Mount in a standard gang box.
Wiring Instructions
The WOS Series Line Voltage sensors are equipped with #14 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Sensor Settings

Programming - IR / Manual Setting
Programming can be done either with the DIP switches and dials on-board the device or with the WIR-3110 setting unit. For more details and additional options, please see the “WIR-3110 Manual”.

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then is activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. An increase in natural light will not force the lights off but as the ambient light level drops the lights will turn on automatically.

Multi-Level Photo Sensing (2-Pole w/ Photo Option)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the secondary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting.
INSTALLATION

- Mount the WOS Series sensor on the wall about 4’ above floor level near the midline of the room so its PIR detection zones cover the room area and any obstructions are within range of the ADI-Voice detector.
- There should be no obstructions between the sensor and the room entrance. This ensures that the sensor’s PIR lens will be activated when a person enters the room, which will subsequently trigger the ADI-Voice.

Installing in Offices
- Sensor effective in obstructed spaces.
- Voice sound re-activation prevents lights out condition.

Installing in Washrooms
- Sensor effective in partitioned spaces.
- Voice sound re-activation prevents lights out condition.

Standard Lens
- Optimal usage is to detect small motions such as hand movements
- Designed for a mounting height of up to 4ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.
INSTALLATION & WIRING DIRECTIONS

Installation
Mounting of the device requires a standard gang box. Install by recessing the device into the standard gang box; lining up the mounting holes and securing it using the screws provided.

Wiring

**CAUTION**

TURN POWER OFF AT THE CIRCUIT BREAKER BEFORE WORKING WITH OR NEAR HIGH VOLTAGE

The WOS Series Line Voltage sensors are equipped with #14 AWG stranded leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations; for installation with field-installed conductors of 60°C minimum rating.

DIP Switches
A bank of eight DIP switches and two rotating controls can be used to manually setup and configure the sensor.

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-On)</td>
<td>Vacancy (Manual On)</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>Photocell Inhibit</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>6*</td>
<td>Photocell Control</td>
<td>Inhibit Primary Pole Only</td>
<td>Inhibit Both Poles</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>Settings Input</td>
<td>IR Handheld (WR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>

*Available in 2-Pole models (-2) only
Wiring Diagrams

The WO5 Series PIR Line Voltage sensors are equipped with #14 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

CAUTION: Turn Power Off At The Circuit Breaker Before Working on Sensor. According to NEC 240-8(d), if the branch circuit breaker is used as the main switch for a fluorescent lighting circuit, the circuit breaker should be marked SRO. All installations should be in compliance with National Electric Code (NEC) and all state, provincial, federal, and local codes.

**Product Details**

**Occupancy/Vacancy Sensor Passive Infrared (PIR) 120/277Vac**

**Features**

- Wall Switch Occupancy/Vacancy Sensor provides 180° coverage to maximize the detection capability.
- A self-adapting mode can be set to use Passive Infrared (PIR) to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Can be optimized by setting on-board DIP Switches and Dials.

**Operation**

120/277Vac Line Voltage wall switch Sensors draw control power directly from the lighting circuit they are intended to control.

When in operation the sensor will detect initial motion using PIR; once motion is detected, the internal contact will close. Motion through PIR is used to maintain the occupied condition as long as occupants remain within coverage range of Sensor.

**Ranges from 30s to 30 min. Full turn Clockwise for Auto Time Full turn Counterclockwise for test mode**

**Time Delay Dial**

(0-99)

**DIP Switches**

- 1 pole
  - No Neutral
- 2 pole
  - No Neutral

**Features**

- Simple to install PIR Sensor configured for ease of use out-of-the-box.
- Replace a Wall Switch to provide maximum energy savings and automated control of lighting loads.
- Optional modes make configuring a Diversa sensor to a unique space quick and easy.
- Commercial Grade Lens and Contact Ratings are ideal for Offices, Schools, and Retail Applications.
- Select models available in White (W), Grey (G), and Ivory (I).

**Specifications**

- Power: 120/277 Vac
- 60 Hz
- Contact Ratings: 120 Vac - 800W, 277 Vac - 1200W
- Power Consumption: 400 micro amps

**Table of Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>120/277 Vac</td>
</tr>
<tr>
<td></td>
<td>60 Hz</td>
</tr>
<tr>
<td>Contact Ratings</td>
<td>120 Vac - 800W</td>
</tr>
<tr>
<td></td>
<td>277 Vac - 1200W</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>400 micro amps</td>
</tr>
</tbody>
</table>

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Passive Infrared (PIR) Occupancy / Vacancy Sensor Product Details
Troubleshooting

Before calling Technical Support, please review the following Troubleshooting Guide.

## Issue Possible Cause Recommendations

- **Sensor is set to Manual On Mode.**
  - Test by pushing button. If in Manual On Mode, the lights will turn on if activated by the push button.
  - Check position of Dip 4.

- **Sensor is set to Natural Daylight Mode (Photo inhibit) & Sufficient Natural Light is Present.**
  - If sufficient natural daylight (at present levels) is present the sensor will not turn the lights on. If the lights are desired to be on at the light levels in the room, make the following adjustments. Place Dip 6 in the Down Position and reverse Dip 7 in the Up Position. Rotate the Light Level Dial clockwise until the lights turn on when button is pressed.

- **Sensor was turned off manually before the Time Delay expired, therefore, will remain off for the remainder of the Time Delay.**
  - If this action is not desired, the sensor can be set so that the button is deactivated. Check position of Dip 3.

- **Power has been interrupted or wiring connection is intermittent.**
  - Check the wiring diagram. Ground must be connected.
  - Check that the activation LED is blinking to detect motion by waving your hand in front of lens.
  - Check position of Dip 1.

- **Sensor is set to Natural Daylight Mode (Photo inhibit) & Sufficient Natural Light is Present.**
  - If sufficient natural daylight (at present levels) is present the sensor will not turn the lights on. If the lights are desired to be on at the light levels in the room, make the following adjustments. Place Dip 6 in the Down Position and reverse Dip 7 in the Up Position. Rotate the Light Level Dial clockwise until the lights turn on when button is pressed.

- **Sensor is in Auto Mode.**
  - If the Sensor is in AUTO Mode it may take longer than expected to turn lights off. Set the Time Delay to 5 minutes and leave space to determine if the sensor is functioning. The maximum Time Delay is 30 minutes.

- **Sensor is being activated by a heat source other than occupant.**
  - Sensor may be detecting heat from Air Handling registers or other heat sources. Check installation guidelines and move if necessary Reduce PIR sensitivity.
  - Check position of Dip 5.

- **Light Level will not turn OFF automatically.**
  - Sensor button has been disabled.
  - Sensor may be detecting heat from Air Handling registers or other heat sources. Check installation guidelines and move if necessary Reduce PIR sensitivity.
  - Check position of Dip 5.

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### DIP Switches & Dial Settings

The following DIP Switches control Option Features Not Found on All Products:

<table>
<thead>
<tr>
<th>Dip #</th>
<th>Function</th>
<th>UP</th>
<th>Down</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>Down</td>
</tr>
<tr>
<td>2</td>
<td>Walk Through Mode</td>
<td>Enabled</td>
<td>Disabled</td>
<td>Down</td>
</tr>
<tr>
<td>3</td>
<td>Auto or Manual On Button</td>
<td>Enabled</td>
<td>Disabled</td>
<td>Down</td>
</tr>
<tr>
<td>4</td>
<td>PIR Sensitivity</td>
<td>High Sensitivity</td>
<td>Medium Sensitivity</td>
<td>Down</td>
</tr>
<tr>
<td>5</td>
<td>Natural Daylight Mode</td>
<td>Disabled</td>
<td>Enabled</td>
<td>Down</td>
</tr>
<tr>
<td>6</td>
<td>Light Level Mode</td>
<td>Light Level Dial Sets</td>
<td>Light Level Dial Sets</td>
<td>Dimming Light Level to be Maintained</td>
</tr>
<tr>
<td>7</td>
<td>Bathroom Mode*</td>
<td>Pole 2 Lags Pole 1 by 50% Time</td>
<td>Pole 1 &amp; Pole 2 Synchronized</td>
<td>Down</td>
</tr>
</tbody>
</table>

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### Factory Dip Switch Settings

- **Up:**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8

- **Down:**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8

### Factory Programming

- **Time Delay:** 10 Minutes
- **Natural Daylight Light Level:** 50% (200 Lux)

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Passive Infrared (PIR) Occupancy / Vacancy Sensor Product Details
Diversa Occupancy & Vacancy Sensors - Recessed Ceiling, Passive Infrared (PIR), 24Vac

PART NO.
WORXID1-N
standard lens, PIR, 24Vac, 1-pole
WORXID2-ALN
extended lens, PIR, 24Vac, 1-pole
WORXID2-DPFL
standard lens, PIR, 24Vac, 2-pole, dimming, photo, relay, light temp.
WORXID2-DPFLN
extended lens, PIR, 24Vac, 2-pole, dimming, photo, relay, light temp.

FEATURES
- Commercial grade components for long-term reliability
- Straightforward wiring for quick installation
- Factory configured for the most common applications
- DIP switches and dials for advanced functionality
- Options:
  - Standard, Extended, High-Bay Lens
  - Dimming, Photo Sensor, Isolated Relay
  - Low Temperature/High Humidity

Wiring Instructions
The WOR Series Low Voltage sensors are equipped with #22AWG Leads. Use appropriate sized wire nuts to connect the wires to the incoming load terminations.

Wiring to a Power Pack
(2-pole sensor requires 2-pole Power Pack)

Specifications
- Power: 24Vac ± 25%
- Class 2 low voltage source
- 60Hz
- Use #22AWG wire

Outputs
- Diode Pulse: Each output is capable of driving up to four Diode Pulse relays
- 0-10V Dimming: Connections are polarity-sensitive - up to 25mA sinking
- Isolated Relay: SPDT Form C contact rated for 1A at 30Vdc

Power Consumption
- 9.5mA Standard
- 14mA with Auxiliary Relay

Approvals
- FCC
- Environment
  - Indoors, stationary, non-vibrating, non-corrosive atmosphere
  - Non-condensing humidity
- Ambient Operating Temperature: 32°F to 104°F (0°C to 40°C)
- Storage Temperature: -14°F to 140°F (-25°C to 60°C)

Installation
Standard Lens (S)
- Locate the sensor near the entrance door wall to prevent it from viewing out into the hallway.
- The lens can tilt, allowing the sensor to be pointed toward the area in front of the entrance door.
- Positioning the sensor in this manner ensures that an occupant moves across the largest detection beam upon entrance, utilizing the sensor’s maximum PIR range.
- Designed for a mounting height of 7-15 ft

Extended Lens for Larger Rooms (X)
- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27’ft in or in dead center of room.
- Tilt the lens to aim the detection zone to the bottom of the door.
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of 7-15 ft

High Bay Lens for High Ceiling Applications (B)
- For 15 to 40 foot ceilings
- Position sensor based on ceiling height, beam pattern and coverage requirements

Sensor Location Guidelines
- To optimize the performance of Diversa Sensors, please review the coverage pattern, range, and model to match with the application. Room dynamics will change when people and furniture are occupying the space.
- In some rooms, after move in, some sensors may require adjustments.
  - Ensure that the sensor is at least 30 inches away from air handlers/registers and not pointed directly at windows
  - Check that you are installing the right product (check the product model number) as per the drawings
- Sensor Location Guidelines for "P" models
  - Place outside the direct cone of light from fixtures
  - Between 3 to 12 feet from windows
  - As close as possible to the fixture being controlled
  - Above the lead illuminated space in the work area
  - Away from lighting that is not being controlled by the sensor

Dimensions/Mounting in inches (mm)
- Unit attaches to mounting ring with screws or it can be mounted into an octagon box.
- Use a 2 1/8” or more, deep box.
- If the box is less, use the spacer ring.
**Installation Guide**

Diversa Occupancy & Vacancy Sensors - Recessed Ceiling, Passive Infrared (PIR), 24Vac

---

**General Programming Instructions**
This covers mode programming using the onboard DIP and Dial switches.

**Factory Defaults**
All DIP switches in DOWN position. Time delay: 10 minutes; Natural Daylight level: 50% (200 lux).

- **Diversa Occupancy Sensors** with “P” in the model number contain a Photo Sensor that is controlled by DIP 6. The factory default for Natural Daylight Mode = ENABLED (DIP 6 DOWN).
- This mode disables the Manual Override Button. To test sensor functionality, you may need to disable Natural Daylight Mode (DIP 6 UP) to test sensor functionality.

1. **Start with the PIR Sensitivity at Medium (DIP 5 DOWN)**
2. **To set the light level at which you want to prevent the sensor from turning light ON, rotate Light Level Dial to adjust the light level**
3. **To enable Room mode, ensure that DIP 8 is UP. In this mode Pole 2 will remain on 50% longer than Pole 1 (time is set with the Time Dial) and Pole 2 cannot be Photo Inhibited**

**DIP Switches & Dial Settings**

<table>
<thead>
<tr>
<th>DIP switch &amp; Dial setting</th>
<th>UP</th>
<th>DOWN</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIP Switches</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 1 - PIR Detection LED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED in Sensor’s PIR window flashes GREEN when PIR detects motion. LEDs can be turned OFF with DIP switch. Sensor continues to function.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 2 - Walk-Through Mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When Enabled and Occupancy switches lights to ON and sensor does not detect motion after 30 seconds of light ON, an OFF Time Delay of 3 minutes is used (OFF Time Delay must be greater than 3 minutes). If motion is detected after 30 seconds of lights ON, the configured OFF Time Delay is followed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 3 - Manual Override</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual Override Button can be disabled with DIP switch to prevent manual ON/OFF.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 4 - Sensor Mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacancy Mode - Lights must be turned ON manually when entering a room and are automatically turned OFF when occupancy no longer detected. Maximizes energy savings because lights are only turned on when lighting is required.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupancy Mode - Automatically turns lights ON when occupancy is detected in a room and automatically turns lights OFF when occupancy is no longer detected. This is a very convenient mode as lighting controls never have to be touched. Because lights are always turned on when occupancy is detected regardless of the need for lighting, this is less energy efficient than Vacancy Mode.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 5 - PIR Sensitivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can be moved from Medium sensitivity (default) to High sensitivity if sensor is not recognizing occupancy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 6 - Natural Daylight Mode (&quot;P&quot; models)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When ENABLED, lights ON when Occupancy detected AND daylight level is below Light Level Dial setting. With lights ON, an increase in daylight above the Light Level Dial setting will not force lights OFF.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 7 - Light Level Mode (&quot;DP&quot; models)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This mode allows the light function to be set and controlled to support Natural Daylight Mode and Closed Loop dimming. With DIP UP the light level dial is used for setting the light level for Natural Daylight Mode. With DIP DOWN, the light level dial is used for setting Closed Loop Dimming.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIP 8 - Room Mode (2-pole models)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole 1 and Pole 2 are set to synchronize to the same Photo and Time Delay settings. With Room Mode = Off, Pole 2 will activate at the same moment as Pole 1 when Occupancy detected; however, Pole 2 will be OFF after 30% longer than Pole 1. (i.e., light ON Pole 1 and Fan is Pole 2. Fan would stay ON 50% longer than light).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dial Settings**

<table>
<thead>
<tr>
<th>Time Delay Dial</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
<th>Level 7</th>
<th>Level 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST</td>
<td>1:00</td>
<td>1:30</td>
<td>2:00</td>
<td>2:30</td>
<td>3:00</td>
<td>3:30</td>
<td>4:00</td>
<td>4:30</td>
</tr>
<tr>
<td>AUTO Time</td>
<td>1:00</td>
<td>1:30</td>
<td>2:00</td>
<td>2:30</td>
<td>3:00</td>
<td>3:30</td>
<td>4:00</td>
<td>4:30</td>
</tr>
</tbody>
</table>

**Troubleshooting**

Before calling Technical Support, please review the following Troubleshooting Guide.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Recommended Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sensor is set to Manual ON Mode.</td>
<td>Check DIP 4. Move DOWN for Auto ON.</td>
</tr>
<tr>
<td></td>
<td>Lights will not turn ON automatically</td>
<td>Manual Override Button was used to turn lights OFF.</td>
</tr>
<tr>
<td></td>
<td>Power has been interrupted or wiring connection is intermittent.</td>
<td>Check the wiring diagram. Ensure ground is connected.</td>
</tr>
<tr>
<td></td>
<td>Sensor is set to Natural Daylight Mode (Photo Inhibit) and Natural Light is Present.</td>
<td>This only applies to Photo Sensor “P” models. Check DIP 6. If DOWN, sensor is in Natural Daylight Mode, therefore lights will only turn ON if there is insufficient natural daylight. Rotate the Light Level Dial clockwise pressing the Manual Override Button until the Lights turn ON. Natural Daylight mode can be disabled by moving DIP 6 UP.</td>
</tr>
<tr>
<td></td>
<td>Sensor is in AUTO Mode.</td>
<td>If the Sensor is in AUTO Mode, it may take longer than expected to turn the lights off. Set the Time Delay to 3 minutes and leave space to determine if the Sensor is functioning. The maximum Time Delay is 30 minutes.</td>
</tr>
<tr>
<td></td>
<td>Sensor is being activated by a heat source other than occupant.</td>
<td>Sensor may be detecting heat from HVAC registers or other heat sources. Check Installation location for heat source. Reduce PIR sensitivity by moving DIP 5 DOWN. Move sensor location - see guidelines.</td>
</tr>
<tr>
<td></td>
<td>Manual Override Button has been disabled.</td>
<td>Move DIP 3 DOWN to enable Manual Override Button.</td>
</tr>
</tbody>
</table>
Features

- Recessed ceiling mounted occupancy sensor provides 360° coverage using an adjustable swivel head to optimize the sensor area.
- The dual-tech sensor utilizes ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.
- A Self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- Can be programmed by on-board DIP switches and dials or an IR Setting Unit for added convenience, especially during commissioning.

Operation

Low voltage sensors are powered by 24VAC from either the WP-PP20-D Power Pack or a 24VAC transformer. When in operation, the sensor will detect initial motion using PIR; once motion is detected the internal contact will close. The ADI-Voice is then activated to work alongside the PIR to detect occupancy.
Wiring Instructions
The WOR Series Trickle Current sensors are equipped with #22 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Sensor Settings

Programming - IR / Manual Setting
Programming can be done either with the DIP switches and dials onboard the device or with the WIR-3110 Setting Unit. For more details and additional options please see the “WIR-3110 Manual”

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Vacancy Sensor
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override input; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.
INSTALLATION

Installing in Smaller Room (Standard Lens)
- Locate the sensor near the entrance door wall to prevent it from viewing out into the hallway.
- The lens can rotate, allowing the sensor to be pointed toward the area in front of the entrance door.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor’s maximum PIR range.

Installing in Larger Room (Extended Lens)
- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27’ in and over (A & B) or in dead center of room.
- Tilt the lens to aim the detection zone to the bottom of the door. (C)
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.

Standard Lens (S)
- Optimal usage is to detect small motions such as hand movements
- Designed for a mounting height of 7-15 ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

Extended Lens (X)
- Optimal usage is to detect large motions such as walking
- Designed for a mounting height of 7-15 ft
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

* Application and Performance Specification Information Subject to Change without Notification
INSTALLATION & WIRING DIRECTIONS

Installation
Mounting of the device requires a 2-1/8” deep or more, octagonal junction box. Install by recessing the device into the octagon box; lining up the mounting holes and securing it using the screws provided. If too shallow, use the spacer ring is provided.

Wiring
The WOR Series Retrofit sensors are equipped with plug-in harness for easy installation. This harness has #20 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

DIP Switches
A bank of eight DIP switches and two rotating controls can be used to manually setup and configure the sensor.

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-ON)</td>
<td>Vacancy (Manual ON)</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>Not Used</td>
<td>N/A</td>
<td>N/A</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>Not Used</td>
<td>N/A</td>
<td>N/A</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>Settings Input</td>
<td>IR Handheld (WIR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>
Diversa Application Note DVA-001:

Trickle Current Sensors
(WOSSDD1-P-N-VW & WOR_DD1-N-N)

There have now a release of Trickle current ONLY sensors.

- WOSSDD1-P-VW
- WORSDD1-N-N
- WORXDD1-N-N

Application: These sensors are ideal for retrofit situations where there is existing 2-Wire Low Voltage wiring, i.e. WR-8501 replacements or ceiling sensor add-on. When used for new construction the intent is small rooms where the room only requires a single circuit and a single sensor.

Restrictions:

- These sensors can only be used for a 2-Wire operation when run a single relay.
- When wired to a power pack 3-wires are used and NO switch can be used in parallel.
- Inputs on interface have NOT been tested or approved for usage.
- Please wire according to the diagrams below. All other configurations, features and wires do not work or may cause unpredictable behavior.
### Features
- Dual technology (PIR & ADI-Voice) Occupancy/Vacancy sensor
- Highly configurable through on-board switches and Infrared Setting Unit
- 360° coverage with tilting lens for directional sensing
- A self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- The photo sensor option provides 0-10Vdc dimming ballast/LED* drivers output for Daylight Harvesting (*LED drivers up to 25mA)
- Power Pack relay control through diode pulse technology

### Operation
Low voltage sensors are powered by 24VAC from either the WP-PP20-D Power Pack or a 24VAC transformer. When in operation, the sensor will detect initial motion using PIR; once motion is detected the internal contact will close. The ADI-Voice is then activated to work alongside the PIR to detect occupancy.

### Specifications

<table>
<thead>
<tr>
<th>PART No.</th>
<th>FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORSDD1-R-N-R</td>
<td>Standard lens, DualTech, 24V, 1-pole, aux. relay</td>
</tr>
<tr>
<td>WORSDD2-N-N</td>
<td>Standard lens, DualTech, 24V, 2-pole, aux. relay</td>
</tr>
<tr>
<td>WORSDD2-R-N</td>
<td>Standard lens, DualTech, 24V, 2-pole, aux. relay</td>
</tr>
<tr>
<td>WORSDD2-DPR-L</td>
<td>Standard lens, DualTech, 24V, 2-pole, dimming, photo sensor, aux.</td>
</tr>
<tr>
<td>WORXDD2-PR-N</td>
<td>Extended lens, DualTech, 24V, 2-pole, photo sensor, aux. relay</td>
</tr>
<tr>
<td>WORXDD2-DPR-L</td>
<td>Extended lens, DualTech, 24V, 2-pole, dimming, photo sensor, aux.</td>
</tr>
</tbody>
</table>

**Inputs**
- 24Vac ±25%
- 60Hz
- Class 2 Low Voltage Source
- #18AWG

**Outputs**
- Diode Pulse: Each output is capable of driving up to four Diode Pulse relays.
- 0-10V Dimming: Use to control up to 50 Ballasts. Connections are polarity sensitive. LED drivers can connect up to 25mA
- Aux Relay: SPDT Form-C contact rated for 1A at 30VDC

**Power consumption**
- 9.5 mA Standard
- 14.0 mA with Auxiliary Relay

**Approvals**
- FCC

**Environment**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operating Temperature: 14°F to 140°F (-10°C to 60°C)
- Storage Temperature: -14°F to 140°F (-25°C to 60°C)
- Low temp and high humidity option (L) products: PCB conformal coated for resistance to damp environments and operation to -40°C/F
- Diversa recessed ceiling sensors fit into a 4” octagon box with a depth of 2-1/8” (for shallower boxes use the included mounting ring). For network wiring, connecting conduit on opposite sides of the octagon box.
Wiring Instructions

The WOR Series Low Voltage sensors are equipped with #22 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Wiring Instructions

Sensor Settings

Programming - IR / Manual Setting
Programming can be done either with the DIP switches and dials on-board the device or with the WIR-3110 setting unit. For more details and additional options please see the "WIR-3110 Manual"

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs in the first 30 seconds after initial turn on.

Vacancy Sensor
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override input; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. This feature will also limit the manual switching, ensuring the lights are not turned on if adequate light is present.

Daylight Harvest Dimming (0-10V Output) (-D)
The 0-10V output can operate up to 50 ballasts/25mA of LED Drivers. This output can be used for either a fixed dim level or in a full range daylight harvesting mode. When set to a fixed dim level, the dial can be used to raise or lower the light level. When set for photo dimming the dial is used to select the maintained light level.

Multi-Level Switching (2-Pole w/o Photo Sensing option)
A switch on the sensor link can be used to trigger both poles simultaneously or step through a multi-level sequence as described in the manual.

Multi-Level Photo Sensing (2-Pole w/ Photo Option)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the secondary pole only; if set to "Secondary Pole Only", the primary pole will trigger based on occupancy, regardless of the photo setting. This feature will also limit the manual switching. Please see the manual for sequences.

Sensor Link
The low voltage sensor is equipped with a connection which facilitates communication between sensors. The sensor link (orange wire) allows multiple sensors to coordinate their signals and act together as a cohesive zone. This connection provides additional control functions as described below.

Diode Pulse: When a diode switch is connected to the sensor link it provides manual control. This can be used to toggle the lights ON/OFF. For two pole sensors, it can provide multi-level sequencing.

Maintained AC: If a maintained AC signal is applied to the sensor link, the sensors will be in an override mode. By default the sensor will turn the lights ON when disabled by this override. This is settable via the IR setting unit.
Installing in Smaller Room (Standard Lens - S)
- Locate the sensor near the entrance door wall to prevent it from viewing out into the hallway.
- The lens can rotate, allowing the sensor to be pointed toward the area in front of the entrance door.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor's maximum PIR range. Optimal usage is to detect small motions such as hand movements.
- Designed for a mounting height of 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

Installing in Larger Room (Extended Lens - X)
- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27ft in and over (A & B) or in dead center of room.
- Tilt the lens to aim the detection zone to the bottom of the door. (C)
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

Installing in High Ceiling Room (High bay Lens – B)
- For 15 to 40 foot ceilings.
- Position sensor based on ceiling height, beam pattern and coverage requirements.
**INSTALLATION & WIRING DIRECTIONS**

**Installation**

Mounting of the device requires a 2-1/8" deep or more, octagonal junction box. Install by recessing the device into the octagon box; lining up the mounting holes and securing it using the screws provided. If too shallow, use the spacer ring is provided.

**Wiring**

The WOR Series Low Voltage sensors are equipped with plug-in harness for easy installation. This harness has #20 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

**DIP Switches**

A bank of eight DIP switches and two rotating controls can be used to manually setup and configure the sensor.

### WOR - - - - 'N'-

<table>
<thead>
<tr>
<th>DIP</th>
<th>On Position</th>
<th>Off Position (Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>IR Settings</td>
<td>Manual Settings</td>
</tr>
<tr>
<td>7</td>
<td>Button Disabled</td>
<td>Button Enabled</td>
</tr>
<tr>
<td>6*</td>
<td>Multi-Level (ML)</td>
<td>All ON / OFF</td>
</tr>
<tr>
<td>5*</td>
<td>ML: 10&gt;11&gt;00</td>
<td>ML: 01 &gt; 11 &gt;00</td>
</tr>
<tr>
<td>4</td>
<td>Occupancy Sensor (Auto-On)</td>
<td>Vacancy Sensor Only</td>
</tr>
<tr>
<td>3</td>
<td>Detect LED Disabled</td>
<td>Detect LED Enabled</td>
</tr>
<tr>
<td>2</td>
<td>PIR High Sensitivity</td>
<td>PIR Normal Sensitivity</td>
</tr>
<tr>
<td>1</td>
<td>ADI-Voice Disabled</td>
<td>ADI-Voice Enabled</td>
</tr>
</tbody>
</table>

### WOR - - - - 'P'-

<table>
<thead>
<tr>
<th>DIP</th>
<th>On Position</th>
<th>Off Position (Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>IR Settings</td>
<td>Manual Settings</td>
</tr>
<tr>
<td>7</td>
<td>Button Disabled</td>
<td>Button Enabled</td>
</tr>
<tr>
<td>6*</td>
<td>Multi level: 10&gt;1P&gt;00</td>
<td>All Photo (P) / OFF</td>
</tr>
<tr>
<td>5</td>
<td>Photo Disabled</td>
<td>Photo Enabled</td>
</tr>
<tr>
<td>4</td>
<td>Occupancy Sensor (Auto-On)</td>
<td>Vacancy Sensor Only</td>
</tr>
<tr>
<td>3</td>
<td>Detect LED Disabled</td>
<td>Detect LED Enabled</td>
</tr>
<tr>
<td>2</td>
<td>PIR High Sensitivity</td>
<td>PIR Normal Sensitivity</td>
</tr>
<tr>
<td>1</td>
<td>ADI-Voice Disabled</td>
<td>ADI-Voice Enabled</td>
</tr>
</tbody>
</table>

### WOR - - - - 'PD'-

<table>
<thead>
<tr>
<th>DIP</th>
<th>On Position</th>
<th>Off Position (Default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>IR Settings</td>
<td>Manual Settings</td>
</tr>
<tr>
<td>7</td>
<td>Button Disabled</td>
<td>Button Enabled</td>
</tr>
<tr>
<td>6*</td>
<td>Multi level: 10&gt;1P&gt;00</td>
<td>All ON / OFF</td>
</tr>
<tr>
<td>5*</td>
<td>Fixed Dim / Photo Disabled</td>
<td>Photo Enabled &amp; Dim</td>
</tr>
<tr>
<td>4</td>
<td>Occupancy Sensor (Auto-On)</td>
<td>Vacancy Sensor Only</td>
</tr>
<tr>
<td>3</td>
<td>Detect LED Disabled</td>
<td>Detect LED Enabled</td>
</tr>
<tr>
<td>2</td>
<td>PIR High Sensitivity</td>
<td>PIR Normal Sensitivity</td>
</tr>
<tr>
<td>1</td>
<td>ADI-Voice Disabled</td>
<td>ADI-Voice Enabled</td>
</tr>
</tbody>
</table>

*Available in 2-Pole models (-2) only
Features

- 180° coverage
- The Dual Technology sensor utilize ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.
- 24Vac model controls Power Pack relay through diode pulse
- A self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- Photo sensor and dimming model (DP) provides 0-10Vdc dimming ballast or 25mA sink LED drivers for Daylight Harvesting.
- Can be programmed by on-board switches and dials or a handheld Infrared Setting Unit (WIR-3110) for added convenience during commissioning.

Operation

Low voltage sensors are powered by 24Vac from either the WP-P20-D Power Pack or a 24Vac transformer. The sensor detects initial motion using PIR; once motion is detected the internal contact will close and ADI-Voice is activated to work alongside the PIR to maintain occupancy.
Details | Occupancy Sensor DualTech Wall Switch 24Vac

Wiring Instructions

The WOS Series Low Voltage sensors are equipped #20AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Sensor Settings
Programming - IR / Manual Setting
Programming done via on-board switches or with WIR-3110 handheld infrared setting unit (sold separately).

Detection (Dual or PIR Only)
The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings.

Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

Vacancy Sensor
Vacancy mode (manual ON) can be enable to maximize energy savings. 2-pole sensors, can be configured for sequencing control.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. This feature will also limit the manual switching, ensuring the lights are not turned on if adequate light is present.

Daylight Harvest Dimming (0-10V Output) (-D)
The 0-10V output can operate up to 25mA sink in LED drivers/Dimming Ballasts. This output can be used for full range daylight harvesting. When set for photo dimming the dial is used to select the maximum light level.

Multi-Level Switching (2-Pole w/o Photo Sensing option)
A switch on the sensor link can be used to either trigger both poles simultaneously or step through a multi-level sequence as described in the manual.

Multi-Level Photo Sensing (2-Pole w/ Photo Option)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the secondary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting. This feature will also limit the manual switching. Please see the manual for sequences.

Sensor Link
The low voltage sensor is equipped with a connection which facilitates communication between sensors. The sensor link (orange wire) allows multiple sensors to coordinate their signals and act together as a cohesive zone. This connection provides additional control functions as described below.

Diode Pulse: When a diode switch is connected to the sensor link it provides manual control. This can be used to toggle the lights ON/OFF. For two pole sensors, it can provide multi-level sequencing.

Maintained AC: If a maintained AC signal is applied to the sensor link by connecting the orange to white wires, the sensors will be in an override mode. By default the sensor will turn the lights ON when disabled by this override (white and red wires). This is settable via the IR setting unit.
Installing in Offices
- Sensor effective in obstructed spaces.
- ADI-Voice re-activation and Smart Sense prevents lights out condition.

Installing in Washrooms
- Sensor effective in partitioned spaces.
- ADI-Voice re-activation and Smart Sense prevents lights out condition.

Standard Lens
- Optimal usage is to detect small motions such as hand movements.
- Designed for a mounting height of up to 4ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.
INSTALLATION & WIRING DIRECTIONS

Installation

- Installation requires a standard gang box. Install wall switch into the gang box. Align mounting holes and secure in place with screws provided.
- Position wall switch at standard switch height (approx. 4' from floor).
- There should be no obstructions between the sensor and the room entrance. This ensures that the sensor’s PIR lens will be recognize when a person enters the room and the ADI-Voice technology will be activated.

Wiring

The WOS Series Low Voltage sensors are equipped with a #20AWG wiring harness. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

DIP Switches

A bank of eight DIP switches and two rotating controls can be used to manually setup and configure the sensor.

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-On)</td>
<td>Vacancy (Manual On)</td>
<td>OFF</td>
</tr>
<tr>
<td>5</td>
<td>Photocell Inhibit</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>6*</td>
<td>Photocell Control</td>
<td>Inhibit Primary Pole Only</td>
<td>Inhibit Both Poles</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>Settings Input</td>
<td>IR Handheld (WIR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>

WOR - - - - '-P'

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-On)</td>
<td>Vacancy (Manual On)</td>
<td>OFF</td>
</tr>
<tr>
<td>5</td>
<td>Photocell Inhibit</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>6*</td>
<td>Photocell Control</td>
<td>Inhibit Primary Pole Only</td>
<td>Inhibit Both Poles</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>Settings Input</td>
<td>IR Handheld (WIR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>

WOR - - - - '-DPR'

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>Detection LED</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-On)</td>
<td>Vacancy (Manual On)</td>
<td>OFF</td>
</tr>
<tr>
<td>5</td>
<td>Photocell Inhibit</td>
<td>Photocell Disabled &amp; Fixed Dim Level</td>
<td>Photocell Enabled &amp; Auto Dim Level</td>
<td>OFF</td>
</tr>
<tr>
<td>6*</td>
<td>Photocell Control</td>
<td>Inhibit Primary Pole Only</td>
<td>Inhibit Both Poles</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
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<td>Settings Input</td>
<td>IR Handheld (WIR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>

*2-Pole models

www.douglaslightingcontrols.com
**Installation Guide**

**Diversa Occupancy & Vacancy Sensors - Wall Switch, Passive Infrared (PIR), 24Vac**

### Specifications

**Inputs**
- 24Vac ± 25%
- Class 2 Low Voltage Source
- 60 Hz
- #18 AWG

**Outputs**
- Diode Pulse: Each output is capable of driving up to four Diode Pulse relays.
- 0-10V Dimming: Connections are polarity sensitive.
  - Up to 25mA sinking.

**Power Consumption**
- 9.5mA Standard

**Environment**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operating Temperature: 32°F to 104°F (0°C to 40°C)
- Storage Temperature: -14°F to 140°F (-25°C to 60°C)

### Dimensions - Inches (mm)

### Wiring to a Power Pack

![Diagram of Wiring to a Power Pack]

**Wiring Diagrams**

Diversa 24Vac sensors include #22 AWG wiring leads. Use appropriate sized wire nuts for connecting wires.

**CAUTION:** Turn power OFF at the circuit breaker before working on sensor. According to NEC 240-83(b), if the branch circuit breaker is used as the main switch for a fluorescent lighting circuit, the circuit breaker should be marked SWD. All installations should be in compliance with National Electric Code (NEC) and all state, provincial, federal, and local codes.

**Installation Coverage**

**Installing in Offices**
- PIR Requires Line of Sight
- Use 2-pole model to control two loads in an office (e.g., light and fan)

**Installing in Restrooms**
- Use 2-pole model to control two loads in a restroom (e.g., light and fan)

**Sensor Location Guidelines**

To optimize the performance of Diversa Sensors, please review the coverage pattern, range, and model to match with the application. Room dynamics will change when people and furniture are occupying the space.

In some rooms, after move in, some sensors may require adjustments.

- Ensure that the sensor is at least 30 inches away from air handlers/registers and not pointed directly at windows.

Sensor Location Guidelines for "P" models:

- Place outside the direct cone of light from fixtures and between 3 to 12 feet from a window.
- As close as possible to the fixture being controlled.
- Above the lead illuminated space in the work area.
- Away from lighting that is not being controlled by the sensor.
Diversa Occupancy & Vacancy Sensors - Wall Switch, Passive Infrared (PIR), 24Vac

General Programming Instructions
This covers mode programming using the onboard DIP and Dial switches.

Factory Defaults
All DIP switches in DOWN position. Time delay: 10 minutes; natural-daylight level: 50% (DIM level).

NOTE
Diversa Occupancy Sensors with a "P" in the model number contain a Photo Sensor that is controlled by DIP 6. The factory default for Natural Daylight Mode = ENABLED (DIP 6 DOWN). This mode disables the Manual Override Button. To test sensor functionality, you may need to disable Natural Daylight Mode (DIP 4 UP) to test sensor functionality.

- Start with the PIR Sensitivity at Medium
- To set the light level at which you want to inhibit the sensor from turning on, put DIP 6 in DOWN position and simply rotate the Light Level Dial to adjust the light level
- To enable Restroom Mode, ensure that DIP 1 is UP. In this mode Pole 2 will remain ON 50% longer than Pole 1 (Time is set with the Time Dial) and Pole 2 cannot be Photo Inhibited

DIP Switches & Dial Settings

<table>
<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>UP</th>
<th>DOWN</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PIR LED</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>2</td>
<td>Wall-Through Mode</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>3</td>
<td>Manual Override</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>4</td>
<td>Sensor Mode</td>
<td>Manual ON (Vacancy)</td>
<td>Auto ON (Occupancy)</td>
<td>DOWN</td>
</tr>
<tr>
<td>5</td>
<td>PIR Sensitivity</td>
<td>High</td>
<td>Medium</td>
<td>DOWN</td>
</tr>
<tr>
<td>6</td>
<td>Natural Daylight Mode (&quot;P&quot; models)</td>
<td>Enabled</td>
<td>Disabled</td>
<td>DOWN</td>
</tr>
<tr>
<td>7</td>
<td>Light Level Mode (&quot;DP&quot; models)</td>
<td>Light Level Dial Sets Photo Sensor</td>
<td>Light Level Dial Sets Dimming Level</td>
<td>DOWN</td>
</tr>
<tr>
<td>8</td>
<td>Restroom Mode (2-pole models)</td>
<td>Offset</td>
<td>Synchronized</td>
<td>DOWN</td>
</tr>
</tbody>
</table>

DIP Switch Modes

DIP 1 - PIR Detection LED
LED on Sensor’s PIR window flashes GREEN when PIR detects motion. LEDs can be turned OFF with DIP switch. Sensor continues to function.

DIP 2 - Walk-Through Mode
When Enabled and Occupancy switches lights to ON and sensor does not detect motion after 30 seconds of light ON, an OFF Time Delay of 3 minutes is used (OFF Time Delay must be greater than 3 minutes). If motion is detected after 30 seconds of light ON, the configured OFF Time Delay is followed.

DIP 3 - Manual Override
Manual Override Button can be disabled with DIP switch to prevent manual ON/OFF.

DIP 4 - Sensor Mode
Vacancy Mode - Lights must be turned ON manually when entering a room and are automatically turned OFF when occupancy no longer detected. Maximizes energy savings because lights are only turned on when lighting is required.

Occupancy Mode - Automatically turns lights ON when occupancy is detected in a room and automatically turns lights OFF when occupancy is no longer detected. This is a very convenient mode as lighting controls never have to be touched. Because lights are always turned on when Occupancy is detected regardless of the need for lighting, this is less energy efficient than Vacancy Mode.

DIP 5 - PIR Sensitivity
Can be moved from Medium sensitivity (default) to High sensitivity if sensor is not recognizing Occupancy.

DIP 6 - Natural Daylight Mode ("P" models)
When ENABLED, lights ON when Occupancy detected AND daylight level is below Light Level Dial setting. With lights ON, an increase in daylight above the Light Level Dial setting will not force lights OFF.

DIP 7 - Light Level Mode ("DP" models)
This mode allows the light function to be set and controlled to support Natural Daylight Mode and Closed Loop dimming. With UP the light level dial is used for setting the light level for Natural Daylight Mode. With DIP DOWN, the light level dial is used for setting Closed Loop Dimming.

DIP 8 - Restroom Mode (2-pole models)
Pole 1 and Pole 2 are set to synchronize to the same Photo and Time Delay settings. With Restroom Mode = OFF, Pole 2 will activate at the same moment as Pole 1 when Occupancy detected; however, Pole 2 will be offset so that OFF delayed 50% longer than Pole 1. E.g. Light is Pole 1 and Fan is Pole 2. Fan would stay ON 50% longer than light.

Auto Time Mode
Activated when Time Delay Dial is set to Auto Time. Red LED indicator will be ON. In this mode, time delay will start automatically set by the sensor learning occupancy patterns.

Test Mode
Activated when Time Delay Dial is set to TEST. Test Mode LED will flash red for 5 minutes, providing a short Time Delay when testing the installation to determine if the sensor is working as intended or requires adjustments. After 5 minutes, LED will stop flashing and Time Delay reverts to Factory Time Delay setting (10 minutes).

Troubleshooting
Before calling Technical Support, please review the following Troubleshooting Guide.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Recommended Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scene is set to Manual ON Mode</td>
<td>Check DIP 4. Move DOWN for Auto ON.</td>
<td></td>
</tr>
<tr>
<td>Scene Sensor is set to Natural Daylight Mode (Photo Inhibited) and sufficient Natural Light is Present.</td>
<td>This only applies to Photo Sensor (&quot;P&quot;) models. Check DIP 6. If DOWM, sensor is in Natural Daylight Mode, therefore, lights will only turn ON if there is insufficient natural daylight. Rotate the Light Level Dial clockwise preventing the Manual Override Button until the lights turn ON. Natural Daylight mode can be disabled by moving DIP 6 UP.</td>
<td></td>
</tr>
<tr>
<td>Lights will not turn ON automatically</td>
<td>Manual Override Button was used to turn lights OFF. Wait for OFF Time Delay to count down, then with motion detected lights will turn ON. Manual Override Button can be disabled by moving DIP 3 UP.</td>
<td></td>
</tr>
<tr>
<td>Power has been interrupted or wiring connection is intermittent.</td>
<td>Check the wiring diagram. Ground is connected with DIP 1 DOWN, check for motion detection by waving hand in front of sensor area. Activation LED will blink green.</td>
<td></td>
</tr>
<tr>
<td>Scene Light will not turn OFF automatically</td>
<td>Sensor is set to Natural Daylight Mode (Photo Inhibited) and sufficient Natural Light is present. This only applies to Photo Sensor (&quot;P&quot;) models. Check DIP 6. If DOWM, sensor is in Natural Daylight Mode, therefore, lights will only turn ON if there is insufficient natural daylight. Rotate the Light Level Dial clockwise preventing the Manual Override Button until the lights turn ON. Natural Daylight mode can be disabled by moving DIP 6 UP.</td>
<td></td>
</tr>
<tr>
<td>Power has been interrupted or wiring connection is intermittent.</td>
<td>Check the wiring diagram. Ground is connected with DIP 1 DOWN, check for motion detection by waving hand in front of sensor area. Activation LED will blink green.</td>
<td></td>
</tr>
<tr>
<td>Scene lights will not turn OFF automatically</td>
<td>Scene Sensor is in AUTO Time Mode. If the Sensor is in AUTO Mode, it may take longer than expected to turn the lights off. Set the Time Delay to 5 minutes and leave space to determine if the Sensor is functioning. The maximum Time Delay is 30 minutes.</td>
<td></td>
</tr>
<tr>
<td>Scene is being activated by a heat source other than occupant.</td>
<td>Sensor may be detecting heat from HVAC registers or other heat sources. Check installation location for heat sources. Reduce PIR sensitivity by moving DIP 5 DOWN. Move sensor location – see guidelines.</td>
<td></td>
</tr>
</tbody>
</table>

Lights will not turn OFF manually | Manual Override Button has been disabled. Move DIP 3 DOWN to enable Manual Override Button. |
Features

- Wall mounted occupancy sensor provides 90° or 130° coverage. Has the ability to rotate in both the horizontal and vertical axis to optimize the sensing area.
- The dual-tech sensor utilizes ADI-Voice Technology, which has advanced digital signal processing for accurate detection of human speech.
- A Self-adapting mode can be set to use both Passive Infrared (PIR) & Accurate Detection Intelligence (ADI) Voice technologies to automatically track occupancy tendencies for continuous maximizing of energy savings.
- Smart Sensing allows for an immediate return to occupied mode in the event of a false off being triggered.
- The photo sensor option is available to provide a 0-10VDC dimming ballast output for Daylight Harvesting, or up to 25mA of LED driver sink.
- Can be programmed by on-board DIP switches and dials or an IR Setting Unit for added convenience, especially during commissioning.

Operation

Low voltage sensors are powered by 24VAC from either the WP-PP Series Power Pack or a 24VAC transformer. When in operation, the sensor will detect initial motion using PIR; once motion is detected the internal contact will close. The ADI-Voice is then activated to work alongside the PIR to detect occupancy.
Wiring Instructions

The WOW Series Low Voltage sensors are equipped with #22 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

Electrical Connections

Sensor Settings

Programming - IR / Manual Setting
Programming can be done either with the DIP switches and dials on-board the device or with the WIR-3110 setting unit. For more details and additional options, please see the “WIR-3110 Manual”.

Detection (Dual or PIR Only)
When in operation, the sensor will detect initial motion using Passive Infrared; once motion is detected the ADI-Voice is then activated to work alongside the PIR to maintain occupancy. The ADI-Voice can be disabled on any dual tech sensors.

Automatic Timeout
By setting the timeout dial to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sensing
When vacancy occurs, sensitivity of the ADI-Voice technology transitions from maximum to zero over an adaptively determined time period, based on occupancy tendencies. During this period, ADI-Voice can turn the lights back on immediately, even with no line-of-sight to the sensor, assuring the best combination of user convenience and energy savings. Energy consumption due to false triggers is minimized by the automatic walk-through mode. This feature turns the lights off after 3 minutes if no occupancy detection occurs after the first 30 seconds after initial turn on.

Vacancy Sensor
The low voltage sensor can be selected as a vacancy (Off only) sensor. This provides additional energy savings by forcing the user to turn the lights on manually. The low voltage sensor has a built-in override input; allowing for the sensor to be operated as a vacancy sensor. For two pole sensors, it provides multi-level control capability.

Photo Sensing (-P)
When enabled, occupancy alone will not trigger the output state to on. If occupancy is detected AND there is a deficiency of natural light, the output is triggered on. This feature will also limit the manual switching, ensuring the lights are not turned on if adequate light is present.

Daylight Harvest Dimming (0-10V Output) (-D)
The 0-10V output can operate up to 25mA sink for LED drivers/Dimming Ballasts. This output can be used for full range daylight harvesting. When set for photo dimming the dial is used to select the maximum light level.

Multi-Level Switching (2-Pole w/o Photo Sensing option)
A switch on the sensor link can be used to either trigger both poles simultaneously or step through a multi-level sequence as described in the manual.

Multi-Level Photo Sensing (2-Pole w/ Photo Option)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the secondary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting. This feature will also limit the manual switching. Please see the manual for sequences.

Sensor Link
The low voltage sensor is equipped with a connection which facilitates communication between sensors. The sensor link (orange wire) allows multiple sensors to coordinate their signals and act together as a cohesive zone. This connection provides additional control functions as described below.

Diode Pulse: When a diode switch is connected to the sensor link it provides manual control. This can be used to toggle the lights ON/OFF. For two pole sensors, it can provide multi-level sequencing.

Maintained AC: If a maintained AC signal is applied to the sensor link by connecting the orange to white wires, the sensors will be in an override mode. By default the sensor will turn the lights ON when disabled by this override (white and red wires). This is settable via the IR setting unit.
INSTALLATION

Installing in Smaller Room (Corner Lens)
- Locate the sensor in the corner, along the entrance door to prevent it from viewing out into the hallway.
- The sensor can be rotated, allowing it to be pointed along the entrance door and slightly downwards.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor’s maximum PIR range.

Installing in Larger Room (Large Area Lens)
- Place the sensor near the center of the wall that is adjacent to the entrance.
- The sensor can be rotated, allowing it to be pointed along the entrance door and slightly downwards.
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.

Corner Lens
- Optimal usage is to detect small motions such as hand movements.
- Designed for a mounting height of up to 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.

Large Area Lens
- Optimal usage is to detect large motions such as walking.
- Designed for a mounting height of up to 7-15ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy.
INSTALLATION & WIRING DIRECTIONS

Installation

Mounting of the device requires a 2-1/8” deep, octagonal junction box. Install by recessing the device into the octagon box; lining up the mounting holes and securing it using the screws provided.

Wiring

The WOW Series Low Voltage sensors are equipped with plug-in harness for easy installation. This harness has #20 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.

DIP Switches

A bank of eight DIP switches and two rotating controls can be used to manually setup and configure the sensor.

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<thead>
<tr>
<th>DIP #</th>
<th>Function</th>
<th>On</th>
<th>Off</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Voice Detection</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>Motion Detection Sensitivity</td>
<td>High</td>
<td>Normal</td>
<td>OFF</td>
</tr>
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<td>3</td>
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<tr>
<td>4</td>
<td>Auto or Manual ON</td>
<td>Occupancy (Auto-On)</td>
<td>Vacancy (Manual On)</td>
<td>ON</td>
</tr>
<tr>
<td>5</td>
<td>Not Used</td>
<td>N/A</td>
<td>N/A</td>
<td>OFF</td>
</tr>
<tr>
<td>6</td>
<td>Not Used</td>
<td>N/A</td>
<td>N/A</td>
<td>OFF</td>
</tr>
<tr>
<td>7</td>
<td>Manual Override Button</td>
<td>Disabled</td>
<td>Enabled</td>
<td>OFF</td>
</tr>
<tr>
<td>8</td>
<td>Settings Input</td>
<td>IR Handheld (WR-3110)</td>
<td>Manual Dips/Dials</td>
<td>ON</td>
</tr>
</tbody>
</table>

*Available in 2-Pole models (-2) only
### Part Number | Description | Specifications
---|---|---
WVRSDD1-R-N | Vacancy sensor, recessed ceiling, standard range, dual technology, 24Vac, 1-pole, relay | Important: Vacancy sensors require a manual ON capability. Therefore, for ceiling mounted vacancy sensors, a wall switch is needed to switch lights ON. A Douglas Lighting Controls 8600 series low voltage 24Vac 2-wire Wall Switch is required. 

**Inputs**
- 24Vac ± 25%
- 60Hz
- Class 2 Low Voltage Source
- #18AWG

**Outputs**
- Diode Pulse: Each output is capable of driving up to four Diode Pulse relays.
- 0-10V Dimming: Connections are polarity sensitive. Sink current maximum 25mA per output. (D – dimming models)
- Aux Relay: SPDT Form-C contact rated for 1A at 30Vdc (R – relay models)

**Power Consumption**
- 9.5 mA Standard
- 14.0 mA with Auxiliary Relay

**Approvals**
- FCC

**Environment**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operating Temperature: 14°F to 140°F (-10°C to 60°C)
- Storage Temperature:

### Features
- Vacancy only sensors meets CEC Title 24 and Local Law 48, New York requirements for Manual ON, Auto OFF operation
- Dual Technology - Passive infrared (PIR) and proprietary Accurate Detection Intelligence Voice (ADI-Voice) technology used to identify room state and control lights
- Smart Sense allows a voice response to confirm occupancy and turn lights ON immediately following an unwanted lights OFF action
- Advanced configuration done with Infrared Setting Unit (Douglas WIR-3110)
- Photo Sensor (P model) can increase energy savings though limiting ON when sufficient Natural Daylight provided
- Dimming (D models) can increase energy savings by dimming 0-10VDC ballast/LED drivers when sufficient Natural Daylight is available (LED drivers up to 25mA)

### Operation
Low voltage Vacancy sensors draw power from a Douglas Lighting Controls Power Pack or 24Vac transformer. Dedicated recessed ceiling Vacancy sensors require a 24Vac wall switch to manually switch lights ON. Once ON, PIR and ADI-Voice are activated to maintain occupied condition. When occupancy is no longer detected, a diode pulse signal is sent and the lights will switch OFF. Lights can also be switched OFF manually.

### Dimensions & Mounting
- Diversa recessed ceiling sensors fit into a 4” octagon box with a depth of 2-1/8” (for shallower boxes use the included mounting ring). For network wiring, connecting conduit on opposite sides of the octagon box.

---

![Diagram of Vacancy Sensor Wiring](image-url)
Configuration Using Infrared Setting Unit WIR-3110
Diversa sensors are pre-configured at the factory for the most common applications. Dedicated Vacancy switches can only be configured with the Douglas Lighting Controls WIR-3110 Infrared Setting Unit. For more details and additional options please see the “WIR-3110 Manual”.

Detection Mode – Dual Technology or Single Technology
ADI-Voice can be disabled.

Auto Time Mode
By setting the timeout to maximum, the sensor will be put into automatic mode which will adjust the time out automatically to maximize energy savings and occupant comfort.

Smart Sense
Allows voice detection to confirm occupancy and turn lights ON (over an adaptively determined period of time) in the event of an unwanted lights OFF action. Sensitivity of ADI-Voice is reduced over time until Smart Sense period ends. At that point, lights need to be switched ON manually.

Photo Sensing (P models)
When enabled (default), pressing the Manual Override Button will switch the lights ON only when the Photo Sensor detects insufficient daylight in the room.

Dimming (D models)
Automatically adjusts light level based on Natural Daylight available to reduce energy consumption

Multi-Level Switching (2-Pole w/o Photo Sensing option)
A switch on the sensor link can be used to either trigger both poles simultaneously or step through a multi-level sequence as described in the manual.

Multi-Level Photo Sensing - 2-Pole with Photo Option (P models)
Photo sensing on a 2-pole sensor can be configured to either restrict both poles or the secondary pole only; if set to “Secondary Pole Only”, the primary pole will trigger based on occupancy, regardless of the photo setting.

Sensor Link
A wired (orange wire) communication network between Diversa low voltage sensors. Sensor Link allows multiple sensors to coordinate their signals and act together as a cohesive zone. This connection provides additional control functions as described below.

Diode Pulse: When a diode pulse switch is connected to sensor link, the switch can provide manual control to switch lights ON (required for Vacancy sensors). For 2-pole sensors, multi-level switching capabilities are available.

Maintained AC: If a maintained AC signal is applied to sensor link by connecting the orange to white wires, the sensors will be in an override mode. By default the sensor will turn the lights ON when disabled by this override (white and red wires). This is configurable via the IR setting unit.

Configuration Options
Each building is unique in its lighting needs. Diversa sensors provide the user with a wide variety of configuration options to ensure each building’s individual needs are met.

- Timeout 30 sec to 30 min. or self-adapting
- Adjustable PIR sensitivity
- Adjustable ADI-Voice sensitivity
- Enable/Disable ADI-Voice
- Enable/Disable LED Indicators
- 2-pole models can be set for different pole ON/OFF sequences (multi-level sequencing - see manual for details)
- Photo Sensing (P models) controls ON through daylight levels (adjustable)
INSTALLATION

Installing Sensor in Standard Room - Standard Range Lens (S)

- Locate the sensor near the entrance door wall to prevent it from viewing out into the hallway.
- The lens can tilt, allowing the sensor to be pointed toward the area in front of the entrance door.
- Positioning the sensor in this manner ensures that an occupant moves across the longest detection beam upon entrance, utilizing the sensor’s maximum PIR range.
- Optimal usage is to detect small motions such as hand movements
- Designed for a mounting height of 7-15 ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

![Top View](image1.png)

![Side View](image2.png)

Typical Enclosed Office

Installing Sensor in Large Room - Extended Range Lens (X)

- Place the sensor near the center of the room ceiling. Locate it so the approximate distance of 27 ft in and over (A & B) or in dead center of room.
- Tilt the lens to aim the detection zone to the bottom of the door. (C)
- Positioning the sensor in this manner ensures that the beam does not reach outside the room without reducing sensitivity.
- Optimal usage is to detect large motions such as walking
- Designed for a mounting height of 7-15 ft.
- ADI-Voice can detect around corners that PIR cannot to maintain occupancy

![Top View](image3.png)

![Side View](image4.png)

Typical Classroom
INSTALLATION & WIRING DIRECTIONS

Installation
Mounting of the device requires a 2-1/8" deep or more, octagonal junction box. Install by recessing the device into the octagon box; lining up the mounting holes and securing it using the screws provided. If too shallow, use the spacer ring provided.

Wiring
The WVR Series Low Voltage sensors are equipped with plug-in harness for easy installation. This harness has #22 AWG leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations.
**Operation**

The WP-PP20-2P-D Power Pack works in conjunction with the Diversa Low Voltage Sensors by providing power to the sensors and receiving on/off commands from the sensor.

**Contact Load Rating**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>General</th>
<th>Tungsten</th>
<th>Standard Ballast</th>
<th>Electronic Ballast</th>
</tr>
</thead>
<tbody>
<tr>
<td>120V</td>
<td>20A</td>
<td>20A</td>
<td>20A</td>
<td>16A</td>
</tr>
<tr>
<td>277V</td>
<td>20A</td>
<td>20A</td>
<td>20A</td>
<td>16A</td>
</tr>
</tbody>
</table>

All Power Packs provide a 24 VAC secondary source for use with the Low Voltage Diversa Sensors and other Diode Pulse devices. All switches or loads required to be supported by the sensor must be included in the loading capacity of the Power Pack.

**Maximum Load Per Input**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Max # of linked sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VAC</td>
<td>10</td>
</tr>
</tbody>
</table>

**Typical Low Voltage Loads**

<table>
<thead>
<tr>
<th>Device</th>
<th>Part #</th>
<th>Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling Mounted Sensor</td>
<td>WOR/WVR</td>
<td>9.5 mA Standard</td>
</tr>
<tr>
<td>Wall Switch Sensor</td>
<td>WOS/WVS</td>
<td>14.0 mA w/ Aux Relay</td>
</tr>
<tr>
<td>Corner Mount sensor</td>
<td>WOW/NVW</td>
<td></td>
</tr>
<tr>
<td>Diode Pulse Switch</td>
<td>WR-8501</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

**Load Voltage**
- 120/277 VAC
- 60 Hz

**Switching Load**
- 120/277 VAC
- 2-Pole Independent Switching
- See Table for contact rating
- Use #14 AWG Wire

**Inputs**
- Diode Pulse
- #18AWG wire

**Output Power Source**
- 24 VAC, 150 mA
- #14AWG wire

**Approvals**
- Certified to CAN/CSA Std. C22.2 No. 14
- Conforms to UL 508 Standard
- FCC
- Title 24

**Environment**
- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
- Ambient Operating Temperature: 14°F to 140°F (-10°C to 60°C)
- Storage Temperature: -14°F to 140°F (-25°C to 60°C)
Installation
The power pack shall be mounted inside an electrical junction box or panel with a ½” threaded nipple.

Wiring Instructions

**CAUTION**
TURN POWER OFF AT THE CIRCUIT BREAKER BEFORE WORKING WITH OR NEAR HIGH VOLTAGE

The power packs are equipped with #14 AWG stranded leads. Use appropriate sized wire-nuts to connect the wires to the incoming load terminations. For installation with field-installed conductors of 60ºC minimum rating.

Electrical Connections

Dimensions & Mounting
The power pack shall be mounted inside an electrical junction box or panel with a ½” threaded nipple.

* Application and Performance Specification Information Subject to Change without Notification
Technical Data

WP-PP20-D 1-Pole Power Pack, 120/277Vac

<table>
<thead>
<tr>
<th>PART No.</th>
<th>FEATURES</th>
<th>SPECIFICATION</th>
</tr>
</thead>
</table>
| WP-PP20-D | • 120/277 VAC  
• Single pole  
• Designed for use with Diversa occupancy sensors and Diode Pulse relays | Load Voltage  
• 120/277 VAC  
• 60 Hz  
Switching Load  
• 120/277 VAC  
• See Table for contact rating  
• Use #14 AWG Wire |

Operation

The WP-PP20-D Power Packs work in conjunction with the Diversa Low Voltage Sensors by providing power to the sensors and receiving on/off commands from the sensor.

Contact Load Rating

<table>
<thead>
<tr>
<th>Voltage</th>
<th>General</th>
<th>Tungsten</th>
<th>Standard Ballast</th>
<th>Electronic Ballast</th>
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<tbody>
<tr>
<td>120V</td>
<td>20A</td>
<td>20A</td>
<td>20A</td>
<td>16A</td>
</tr>
<tr>
<td>277V</td>
<td>20A</td>
<td>20A</td>
<td>20A</td>
<td>16A</td>
</tr>
</tbody>
</table>

All Power Packs provide a 24 VAC secondary source for use with the Low Voltage Diversa Sensors and other Diode Pulse devices. All switches or loads required to be supported by the sensor must be included in the loading capacity of the Power Pack.

Maximum Load Per Input

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Max # of Linked Sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VAC</td>
<td>10</td>
</tr>
</tbody>
</table>

Typical Low Voltage Loads

<table>
<thead>
<tr>
<th>Device</th>
<th>Part #</th>
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<tr>
<td>Ceiling Mounted Sensor</td>
<td>WOR/WVR</td>
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<tr>
<td>Wall Switch Sensor</td>
<td>WOS/WVS</td>
<td>14.0 mA w/ Aux Relay</td>
</tr>
<tr>
<td>Corner Mount Sensor</td>
<td>WOW/WVW</td>
<td></td>
</tr>
<tr>
<td>Diode Pulse Switch</td>
<td>WR-8601</td>
<td>4 mA</td>
</tr>
</tbody>
</table>
**Wiring Instructions**

Terminating wire shall be a minimum of #22 AWG for control power connections and shall be suitably sized to handle the load ratings below.

**Electrical Connections**

![Electrical Connections Diagram](image)

**Dimensions & Mounting**

The power pack shall be mounted inside an electrical junction box or panel with a ½” threaded nipple.

![Dimensions Diagram](image)

*Application and Performance Specification Information Subject to Change without Notification*
Diversa WP-PNL series panels are a line of one zone, multi-pole panels giving a single override.

- A panel consists of the transformer, enclosure (tub), the interior and the cover.
- Interior has snap brackets for mounting relays and DIN rail in the centre for mounting control components.
- Box knockouts are located so that panels of the same horizontal or vertical dimension can be joined with conduit nipples.

**Certifications**
- UL listed, CSA approved.
- EEMAC/NEMA 1 Standard.

**Options**
- 3-Pole 120/277
- 4-Pole 120/277
- 2-Pole 120/347
- 3-Pole 120/347
- 4-Pole 120/347

**Specifications**
- Enclosures and covers are made of steel coated with ANSI/ASA 61 Grey. Coating is heat fused polyester epoxy finish applied on all surfaces.
- Interior insert is made from aluminum, steel and plastic parts.
**WP-RM Panels**

**Ordering Info**

<table>
<thead>
<tr>
<th>PART No.</th>
<th>POLES</th>
<th>VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP-RM-3P-D</td>
<td>3</td>
<td>120/277</td>
</tr>
<tr>
<td>WP-RM-4P-D</td>
<td>4</td>
<td>120/277</td>
</tr>
<tr>
<td>WP-RM-5P-D</td>
<td>5</td>
<td>120/277</td>
</tr>
<tr>
<td>WP-RM-3P-347-D</td>
<td>3</td>
<td>120/347</td>
</tr>
<tr>
<td>WP-RM-4P-347-D</td>
<td>4</td>
<td>120/347</td>
</tr>
<tr>
<td>WP-RM-5P-347-D</td>
<td>5</td>
<td>120/347</td>
</tr>
</tbody>
</table>

**Technical Room Panels for Diversa**

- **PART No.**
  - WP-RM Panels

- **DESCRIPTION**
  - Diversa WP-RM series panels are a versatile line of room control panels giving individual control as well as a single override.
  - A panel consists of the transformer, control electronics, enclosure (tub), the interior and the cover.
  - Interior has snap brackets for mounting relays and DIN rail in the centre for mounting control components.
  - Box knockouts are located so that panels of the same horizontal or vertical dimension can be joined with conduit nipples.

- **SPECIFICATION**
  - Enclosures and covers are made of steel coated with ANSI/ASA 61 Grey. Coating is heat fused polyester epoxy finish applied on all surfaces.
  - Interior insert is made from aluminum, steel and plastic parts.
  - Certifications
    - UL listed, CSA approved.
    - EEMAC/NEMA 1 Standard.
  - Options
    - 3-Pole 120/277
    - 4-Pole 120/277
    - 5-Pole 120/277
    - 3-Pole 120/347
    - 4-Pole 120/347
    - 5-Pole 120/347

**Room Panel Schematic**

- Transformer
- 24VAC
- Relay Panel
- Relay Scanner
- Diversa Occupancy Sensor (Group Switching)
- Individual Loads
- OS
- SW

**Room Panels**

- www.douglaslightingcontrols.com
Dimming Components
DLS Series Analog Dimmers

### Features
- Designed for Architectural dimming from standard 0-10V wall dimmers or controllers
- Use with Dialog WDB-3314

### Operation
Enclosure Installation Surface mount the dimmer pack in a well ventilated area where the ambient temperature does not exceed 104°F for full load operation. Allow 2" of side clearance for proper air circulation and servicing. Installation clearance shall meet local and/or NEC code requirements. Enclosures may be attached to the wall or other mounting surface by holes in the heat sink flanges. Refer to the drawings below (FIGURE 3) for the correct dimensions. Conduit shall be pulled to the top of the dimmer packs.

### PART No. DESCRIPTION SPECIFICATION
| DLS-4500-120 | • 4 channel x 500 W Dimmer or switch pack | • Heavy-Duty Outputs, Dims 4 x 4 AMP loads |
|             | • Dimmer or switch selection with adjustable Switch level | • (4 dimmers x 500W @120VAC). |
|             | • Universal dimmers for LED, Fluorescent, Low-Voltage Transformers | • Active DC component protection for inductive loads |
|             | • 120VAC | • Suitable for inductive Loads at Full Rating |
|             | • Suitable for dimming Triac dimmable LED & CFL Bulbs | • 0-10V analog lighting controllers compatible |

### DIMENSIONS & MOUNTING
- Compact Size, 11.25" H x 4.5" W x 3.75" D
- Wall-Mount aluminum enclosure
DLS-4500 General Wiring Instructions

Wiring Notes:
0. DO NOT EXCEED 480 W (4 Amps) per each dimmer @ 120VAC.
0. All wiring from control to dimmers is low voltage (NEMA Class 2)
0. DLS-4500 dimmer packs may be fed by one 20 A (maximum) branch circuit and may have up to Four separately dimmed loads.
0. CAUTION: DO NOT attempt to parallel outputs to increase capacity.
0. Installations must conform to local and/or NEC code requirements.
0. Each load must have its own Neutral wire for full load operation.
0. All line voltage wires must have copper conductors of adequate Gaug with 90°C wire insulation.
0. POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE DLS-4500 TO ENSURE PROPER WIRING.

Figure 4 - DLS-4500 Typical Control Wiring

Analog 0-10V Control inputs

Figure 5 - DLS-4500 Typical 120 VAC Wiring

From Electrical Distribution Panel 1x20 A - 120 VAC Breaker

CAUTION:
Fuses 1 to 4 are 5 Amps/250V: quick blow to be replaced by certified electrician.

For Full Load Operation Use:
#12 AWG copper conductor wire for Line & Neutral Feeds.
#14 AWG copper conductors to each load.
Follow N.E.C. requirements
Max. Per Load: 4 Amperes (480 W at 120 VAC).
**Technical**

### DLS Series Analog Dimmers

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLS-22000-120</td>
<td>2 channel x 2000 W Dimmer or switch pack</td>
<td>Heavy-Duty Outputs, Dims 2 x 16 AMP loads</td>
</tr>
<tr>
<td>DLS-24500-277</td>
<td>Dimmer or switch selection with adjustable Switch level</td>
<td>(2 dimmers x 2000W @120VAC).</td>
</tr>
<tr>
<td></td>
<td>Universal dimmers for LED, Fluorescent, Low-Voltage Transformers</td>
<td>Active DC component protection for inductive loads</td>
</tr>
<tr>
<td></td>
<td>120VAC or 277VAC</td>
<td>Suitable for inductive Loads at Full Rating</td>
</tr>
<tr>
<td></td>
<td>Suitable for dimming Triac dimmable LED &amp; CFL Bulbs</td>
<td>0-10V analog lighting controllers compatible</td>
</tr>
</tbody>
</table>

**Features**

- Designed for Architectural dimming from standard 0-10V wall dimmers or controllers
- Use with Dialog WDB-3314

**Operation**

Enclosure Installation

Surface mount the dimmer pack in a well ventilated area where the ambient temperature does not exceed 104° F for full load operation. Allow 2” of side clearance for proper air circulation and servicing. Installation clearance shall meet local and/or NEC code requirements. Enclosures may be attached to the wall or other mounting surface by holes in the heat sink flanges. Refer to the drawings below (FIGURE 3) for the correct dimensions. Conduit shall be pulled to the top of the dimmer packs.

**DIMENSIONS & MOUNTING**

- Compact Size, 11.75” H x 8.30” W x 4.12” D
- Wall-Mount aluminum enclosure
Figure 3 - DLS-22000 Dimensional Diagram
Wiring notes:
- Do not exceed 1920W (16 Amps.) per each dimmer at 120 VAC.
- All wiring from control dimmers is low voltage (NEMA Class 2).
- DLS-22000 dimmer packs may be bed by one or two 20A (maximum) Branch circuits and may have up to two separately dimmed loads.
- Both breakers must be on the same power phase.
- CAUTION: DO NOT attempt to parallel outputs to increase capacity.
- Installations must conform to local and/or NEC code requirements.
- Each load must have its own Neutral wire for full load operation.
- All line voltage wires must have copper conductors of adequate Gauge with 90° wire insulations.
- POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE DLS-22000 TO ENSURE PROPER WIRING.
Technical

DLS Series Analog Dimmers

PART No. | DESCRIPTION | SPECIFICATION
---|---|---
DLS-41000-120 DLS-42250-277 | • 4 channel x 1000 W Dimmer or switch pack • Dimmer or switch selection with adjustable Switch level • Universal dimmers for LED, Fluorescent, Low-Voltage Transformers • 120VAC or 277VAC • Suitable for dimming Triac dimmable LED & CFL Bulbs
 | Heavy-Duty Outputs, Dims 4 x 8 AMP loads (4 dimmers x 1000W @120VAC), (4 dimmers x 2250W @277VAC) 
 | Active DC component protection for inductive loads 
 | Suitable for inductive Loads at Full Rating 
 | 0-10V analog lighting controllers compatible

Features

- Designed for Architectural dimming from standard 0-10V wall dimmers or controllers
- Use with Dialog WDB-3314

Operation

Enclosure Installation Surface mount the dimmer pack in a well ventilated area where the ambient temperature does not exceed 104° F for full load operation. Allow 2” of side clearance for proper air circulation and servicing. Installation clearance shall meet local and/or NEC code requirements. Enclosures may be attached to the wall or other mounting surface by holes in the heat sink flanges. Refer to the drawings below [FIGURE 3] for the correct dimensions. Conduit shall be pulled to the top of the dimmer packs.

DIMENSIONS & MOUNTING

- Compact Size, 11.75” H x 8.30” W x 4.12” D
- Wall-Mount aluminum enclosure
Figure 3 - DLS-41000 Dimensional Diagram
Features

DLS Series Analog Dimmer

Figure 4 - DLS-41000 Typical Control Wiring.

Analog 0-10V Control inputs

Control #1

Control #2

Control #3

Control #4

Optional: Could be also controlled with 4x 100KOHM potentiometers.

Figure 5 - DLS-41000 Typical 120 VAC Wiring.

LDM Load Driver Module

SSR1

SSR2

SSR3

SSR4

INT-AN04 Control Board

SSR's OPTICAL ISOLATORS

9 VAC Transformer

NEUTRAL BUS

To Distribution Panel Neutral Bus

2x20 A - 120 VAC Breakers On Same Phase

Electrical Distribution Panel

Ear Ground

For Full Load Operation Use:

#12 AWG copper conductor wire for Line & Neutral Feeds.

#14 AWG copper conductors in/out to each load.

Max. Load: 8 Amperes (950W at 120 VAC).
Douglas Lighting Control’s® Reverse Phase Dimmer converts a 0-10V dimming signal to an Electronic Low Voltage (ELV) dimming output to control luminaires with ELV power supplies. One Reverse Phase Dimmer can control up to 4-channels of 300W loads at 120VAC. The Reverse Phase Dimmer accepts 4 x 0-10V inputs and 4 x fixed line voltages. Using the Reverse Phase Dimmer, lighting loads such as LED bulbs, fluorescent lighting fixtures and low voltage transformers can be dimmed from Douglas’ standard Lighting Control Panels or Dialog® Room Controller.

By using the Reverse Phase Dimmer, lighting loads which are not compatible with forward phase dimming modules can now be controlled. Compatibility with both Dialog Lighting Control Panels and Dialog Room Controllers make it an ideal solution for when dimming is required for line voltage lighting.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLS-RP-4300-120</td>
<td>0-10V Analog Control, Reverse Phase, Trailing Edge, 4 Channel x 300 W Dimmer &amp; Switch Packs, Analog 0-10V</td>
</tr>
</tbody>
</table>
0-10V to Reverse Phase Dimmer Module

**Specifications:**
- Outputs: 4 x 300 Watts
- Input: 1 x 15 Amp Breaker

**Dimmer power specifications:**
- 1 V = 0%
- 10 V = 100%

**Control Input specifications:**
- 0-10V analog signal from a sinking controller.
- Dimmer Pack may be fed by one 20A (Max) Branch Circuit.

**Electrical Ratings**
- Input Voltage: 120 VAC
- Relay Load Current: 1 to 4, 4 Amps.
- Input Current: 20 Amps.
- Neutral Bus Connections.
- Hot Line Feed for Relays 1, 2, 3 & 4.
- Output indicators
- SSR’s OPTICAL ISOLATORS

**Table 1 - Terminals Definition**

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Output Of Solid-State Relay #1</td>
</tr>
<tr>
<td>2</td>
<td>Output Of Solid-State Relay #2</td>
</tr>
<tr>
<td>3</td>
<td>Output Of Solid-State Relay #3</td>
</tr>
<tr>
<td>4</td>
<td>Output Of Solid-State Relay #4</td>
</tr>
<tr>
<td>H</td>
<td>Hot Line Feed For Relays 1, 2, 3 &amp; 4.</td>
</tr>
<tr>
<td>N</td>
<td>Neutral Bus Connections.</td>
</tr>
</tbody>
</table>

**General Wiring Instructions & Installation**
- All line voltage wires must be copper conductors of adequate gauge rated to a minimum of 90°C insulation.
- Do not exceed 250W per each dimmer @120VAC.
- Follow NEC requirements.
- #12 AWG copper conductor wire for Line & Neutral Feeds.
- #14 AWG copper conductors to each load.
- Follow N.E.C. requirements.
- Max. Per Load: 2.5 Amperes (300 W at 120 VAC).

**Environment**
- Indoor, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
- Ambient operating temperatures: 32°F to 102°F (0°C to 38°C)
- Plenum rated

**Weight**
- 2.124lbs (0.963kg)

**Outputs**
- 4 x 300 W. Reverse Phase

**Inputs**
- 120VAC, 15A Max., 60Hz

**Current Draw**
- 1mA
- 1V=0%, 10V=100%

**Dimming**
- Do not attempt to parallel outputs to increase capacity.
- Installation must conform to local and/or NEC requirements.
- Each load must have its own neutral wire for full load operation.
- All line voltage wires must be copper conduct of adequate gauge rated to a minimum of 90°C insulation.

**0-10V Control Input connectors**
- 1/2in and 3/4in Conduit Knockouts

**Bottom View**
- Low Voltage Ports

**Top View**
- 0-10V Control Input Connectors

**Dimensions**

**Figure 1**

**Table of Contents**
- Table 1 - Terminals Definition
- Analog 0-10V Control Inputs

**Rev. 6/16/17**

Toll Free: 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com
Hardwired Components
LitePak™ 2 from Douglas Lighting Controls is a standardized digital lighting control system that provides automated and manual control over indoor and outdoor lighting. Contractors find standard off-the-shelf lighting control panels valuable for smaller projects due to their low cost and ease of installation.

New to LitePak 2: 0-10V dimming through independent dimming channels, an interface that follows the same format as our centralized relay panel lighting control unit (LCU), and peripherals connected using a 2-wire (#18/2), low voltage, polarity neutral, power and data network.

LitePak is available in 8 and 16 relay, dimming or non-dimming, Central and Expansion enclosures that can be used together to support up to 48 relay circuits. The Central panel contains the LCU and Expansion Panels are added to build a system up to 48 relay circuits. Panels are available with Surface mount or Flush mount covers. A NEMA type 4 enclosure is available for installing systems in harsh environments.

The touchscreen has a 365-day astronomical clock for time-of-day/sunrise/sunset control, ability to schedule up to 900 events, and connect with peripheral devices (wall switch stations, occupancy sensors, interior and exterior daylight sensors) to run a fully automated lighting system with daylight control. With the addition of dimming capabilities, daylight harvesting can be implemented.

LitePak 2 is designed to meet the requirements of ASHRAE 90.1 and Title 24 projects.

**Typical Applications:** Retail and Commercial projects including: Gas Stations, Convenience Stores, Warehouses, and Auto Dealerships
### LitePak™ 2 Standardized Lighting Control System

**Input Voltage**
- 120VAC/277VAC or 120/347VAC (DLP2C); 60Hz models

**0-10V Sink Current**
- 100mA

**Wiring Limits**
- Max. 1000’ from LitePak to furthest device; Total Wire Length Max. 3000’

**Load Ratings (Per Relay)**
- 30A 300VAC General Use
- 2400W 120VAC Tungsten
- 20A 300 VAC Standard Ballast
- 16A 277VAC Electronic Ballast

**Regulatory**
- UL 508A
- CSA 22.2 #14
- Designed to meet ASHRAE 90.1 requirements
- Designed to meet California Title 24 requirements

**Dimensions**
- 8 Relay/8 Dimming 16”H x 12”W x 4.5”D; 22 lbs.; NEMA 4: 20.5”H x 16”W x 6.5”D, 49.5lbs.
- 16 Relay/16 Dimming 24”H x 12”W x 4.5”D; 32 lbs.; NEMA 4 29.75”H x 16”W x 7”D, 70.5lbs.

**Warranty**
- Standard 1-year

---

**Parts Numbering System**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLP2-8R8D-SM</td>
<td>120/277VAC, 8 RELAY, 8 DIM, SURFACE MOUNT</td>
</tr>
<tr>
<td>DLP2-8R8D-FM</td>
<td>120/277VAC, 8 RELAY, 8 DIM, FLUSH MOUNT</td>
</tr>
<tr>
<td>DLP2-8R8D-N4</td>
<td>120/277VAC, 8 RELAY, 8 DIM, NEMA TYPE 4</td>
</tr>
<tr>
<td>DLP2-16R16D-SM</td>
<td>120/277VAC, 16 RELAY, 16 DIM, SURFACE MOUNT</td>
</tr>
<tr>
<td>DLP2-16R16D-N4</td>
<td>120/277VAC, 16 RELAY, 16 DIM, NEMA TYPE 4</td>
</tr>
<tr>
<td>DLP2-8R-SM</td>
<td>120/277VAC, 8 RELAY, SURFACE MOUNT</td>
</tr>
<tr>
<td>DLP2-8R-FM</td>
<td>120/277VAC, 8 RELAY, FLUSH MOUNT</td>
</tr>
<tr>
<td>DLP2-8R-N4</td>
<td>120/277VAC, 8 RELAY, NEMA TYPE 4</td>
</tr>
<tr>
<td>DLP2-16R-SM</td>
<td>120/277VAC, 16 RELAY, SURFACE MOUNT</td>
</tr>
<tr>
<td>DLP2-16R-FM</td>
<td>120/277VAC, 16 RELAY, FLUSH MOUNT</td>
</tr>
<tr>
<td>DLP2-16R-N4</td>
<td>120/277VAC, 16 RELAY, NEMA TYPE 4</td>
</tr>
<tr>
<td>DLP2-8R8D-SM-EXP</td>
<td>120/277VAC, 8 RELAY, 8 DIM, SURFACE MOUNT, EXPANSION PANEL</td>
</tr>
<tr>
<td>DLP2-8R8D-FM-EXP</td>
<td>120/277VAC, 8 RELAY, 8 DIM, FLUSH MOUNT, EXPANSION PANEL</td>
</tr>
<tr>
<td>DLP2-8R8D-N4-EXP</td>
<td>120/277VAC, 8 RELAY, 8 DIM, NEMA TYPE 4, EXPANSION PANEL</td>
</tr>
<tr>
<td>DLP2-16R16D-SM-EXP</td>
<td>120/277VAC, 16 RELAY, 16 DIM, SURFACE MOUNT, EXPANSION PANEL</td>
</tr>
<tr>
<td>DLP2-16R16D-N4-EXP</td>
<td>120/277VAC, 16 RELAY, 16 DIM, NEMA TYPE 4, EXPANSION PANEL</td>
</tr>
</tbody>
</table>

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**Toll Free:** 877-873-2797 or Direct 604-873-2797 | lighting@douglaslightingcontrols.com | www.douglaslightingcontrols.com

*Patent Pending*  Rev. 5/25/18
Most State Energy Codes require an energy deduction for each lineal foot of track lighting installed. This may restrict the installation of other lighting fixtures for this space. A solution is to install the TrakPak Panel. It has supplemental step-down breakers which provide reduced current to the track circuits. The volt-ampere rating of the breaker can be used instead of the lineal feet of the track lighting circuit, thereby reducing the energy deduction.

TrakPak Current Limiting Panels are designed to reduce the amperage available on electrical circuits feeding track lighting systems. TrakPak WTP-10xx Current Limiting Panels are available with up to 15 circuit breakers of various amperage capacities from 0.5 to 16 amperes, allowing flexibility of design in total watts per square foot calculations.

The enclosure, which meets NEMA 1 Standard, is made of steel coated with ANSI/ASA 61 Grey. Coating is heat fused polyester epoxy. Hinged door with lock.

Capacity
Available with quantities of 1 to 15 circuit breakers. Circuit breakers, which are used to reduce the line amperage, can each be from 0.5 Amp to 16 Amp capacity.

AIC Rating
10,0000 Amp.

Environment
Environment: indoors, stationary, non-vibrating atmosphere and non-condensing humidity.
Ambient operating temp: -15° F to +120° F (-25° C to +50° C).

Certifications
UL 508.
EEMC. NEMA 1.

Output Distribution Panel (current source)
Normal or emergency circuit breaker panel.
Can be single phase or three phase, 120VAC-277VAC.

Neutral Terminals (quantity: 1-15)
One terminal provided for each circuit breaker for neutral wire to output circuit if needed.

Ground Terminals (quantity: 1-8)
One terminal with 2 inputs provided for every 2 circuit breakers for output circuit ground wires if needed.

Individual Lighting Circuits, as required
Ampere rating of breaker supplying circuit determines energy usage.

Components 7.5
www.DouglasLightingControls.com

This page is for internal use only. It is not intended for distribution or release to anyone outside of the company. Copyright © 2007 Douglas Lighting Controls. All rights reserved. DO NOT COPY. D-7.5E - Rev C - Technical Panels.
Current Limiting Panels, Large

**PART No.**

WTP-20xx

(*xx = number of breakers)

TrakPak Circuit Limiting Panel

WTP-20xx Current Limiting Panels require an energy deduction for each linear foot of track lighting installed. This may restrict the installation of other lighting fixtures for this space.

A solution is to install the TrakPak Panel. It has supplemental step-down breakers which provide reduced current to the track circuits. The volt-ampere rating of the breaker can be used instead of the linear feet of the track lighting circuit, thereby reducing the energy deduction.

TrakPak Current Limiting Panels are designed to reduce the amperage available on electrical circuits feeding track lighting systems.

TrakPak WTP-20xx Current Limiting Panels are available with 16 to 42 circuit breakers of various amperage capacities from 0.5 to 16 amperes, allowing flexibility of design in total watts per square foot calculations.

- **Enclosure**
  - The enclosure, which meets NEMA 1 Standard, is made of steel coated with ANSI/ASA 61 Grey. Coating is heat fused polyester epoxy.
  - Hinged door with lock.

- **Interior**
  - Interior insert is made from aluminum, steel and plastic parts.
  - Insert has DIN rail in center for mounting circuit breakers.
  - One neutral terminal for each installed circuit breaker.
  - One ground terminal for every 2 installed circuit breakers.

- **Certifications**
  - UL 508.
  - EEMC. NEMA 1.

- **Capacity**
  - Available with 16 to 42 circuit breakers.
  - Circuit breakers, which are used to reduce the line amperage, can each be from 0.5 Amp to 16 Amp capacity.

- **AIC Rating**
  - 10,000 Amp.

- **Environment**
  - Environment: indoors, stationary, non-vibrating atmosphere and non-condensing humidity.
  - Ambient operating temp: -15°F to +120°F (-25°C to +50°C).

**Specifications**

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Limiting Circuit Breakers (quantity: 16-42)</td>
<td>- 16 to 42 circuit breakers, each supplying a track lighting circuit. - Breaker rating from 0.5 Amp to 16 Amp output. - Ampere rating, rather than lineal footage of track, determines energy usage. - Circuit breaker ampere ratings available include: 0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 15 and 16 Amp.</td>
</tr>
<tr>
<td>Ground Terminals (quantity: 8-21)</td>
<td>- One terminal 2 inputs per terminal provided for every 2 circuit breakers for output circuit ground wires if needed.</td>
</tr>
<tr>
<td>Neutral Terminals (quantity: 16-42)</td>
<td>- One terminal provided for each circuit breaker for neutral wire to output circuit if needed.</td>
</tr>
</tbody>
</table>

**DIMENSIONS & MOUNTING**

- Surface or flush mount NEMA 1 enclosure.
- Bolt enclosure to wall using mounting holes on top and bottom brackets.

**California 2005 Title 24, Section 130 (c) 3:**

Luminaires wattage incorporated into the installed lighting power shall be determined in accordance with the following criteria:

3. The wattage of line-voltage lighting track and plug-in busway which allows the addition or relocation of luminaires without altering the wiring of the system shall be the volt-ampere rating of the branch circuit feeding the luminaires...

The TrakPak Current Limiting Panel reduces the calculated wattage of track lighting circuits by providing lower-current-rated feeds.
WRD-8701 - Hardwired / Relay Direct - DIM / ON / OFF

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| WRD-8701 | 0-10v Dimming with ON/OFF control  
LED indicator for dimming level status  
24VAC low voltage device  
Connects to standard 0-10V LED driver  
Face plate sold separately |

**SPECIFICATIONS**

- **Input/Output**
  - Two screw terminals 24Vac 3.0A
  - Red screw terminal for switch/relay
  - Two screw terminals for connecting 0-10V dimming wires (Grey/Violet)
  - 100mA sink current
  - Maximum relays per switch: 3
  - Maximum switches on one relay: 4
  - Maximum Wire length 300’ 100M

- **Environment**
  - Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity
  - Ambient operating temperature: -15°F to 140°F (-25°C to 60°C)
  - 100mA sink current
  - #18AWG
  - Max. relays on one switch: 3
  - Max. switches on one relay: 4

**INSTALLATION & CONNECTIONS**

- Connect the dimming control wires (Violet/Grey) from the LED driver to the corresponding screw terminals
- Connect 24VAC to the corresponding screw terminals

**DIMENSIONS**

- LED Lamps
  - Violet wire
  - Grey wire
- Class 1 Supply Voltage (120 or 277VAC)
- Transformer
- Panel
  - Blu
  - Red
- Relay
- Face plate sold separately

- Mount to standard gang box.
Douglas Lighting Controls 8700 series light switches provide control over facility lighting via momentary relay-direct functionality. 8700 series switches are used in small to medium sized applications that use Douglas Lighting Controls LitePak, small or satellite relay panels and where straightforward lighting control functionality is required. 8700 switches are easily configured into a system that uses Diversa low voltage occupancy sensors.

The 8700 switch provides control over relays through a low voltage diode pulse that is sent along the switch signal leg when the momentary switch is pushed. This pulse will open or close the relay, which in-turn controls the light(s). The switches can be connected to a relay in: one-to-one, many-to-one, one-to-many configuration, and with Diversa sensors.

8700 series switches are available with 1, 2, 3, 4 buttons in addition to a 0-10V dimmer with a momentary ON/OFF button. Switches are available in White, Ivory and Grey. LEDs indicate switch status: Orange (ON) or Blue (OFF). Label windows are provided. Labels can printed and installed at the factory when requested at the time of your order.

<table>
<thead>
<tr>
<th></th>
<th>1-button switch</th>
<th>2-button switch</th>
<th>3-button switch</th>
<th>4-button switch</th>
<th>0-10V / 1-button dimmer switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>WSR-8711</td>
<td>WSR-8712</td>
<td>WSR-8713</td>
<td>WSR-8714</td>
<td>WRD-8701</td>
</tr>
<tr>
<td>Grey</td>
<td>WSR-8711G</td>
<td>WSR-8712G</td>
<td>WSR-8713G</td>
<td>WSR-8714G</td>
<td>WRD-8701G</td>
</tr>
<tr>
<td>Ivory</td>
<td>WSR-8711IV</td>
<td>WSR-8712IV</td>
<td>WSR-8713IV</td>
<td>WSR-8714IV</td>
<td>WRD-8701IV</td>
</tr>
</tbody>
</table>

- 24Vac
- 3.0A
- #18 AWG
- Max. relays on one switch: 3
- Max. switches on one relay: 4

- 24Vac
- 3.0A
- 100mA sink current
- #18AWG
- Max. relays on one switch: 3
- Max. switches on one relay: 4

Environment

Indoors, stationary, non-vibrating, non-corrosive, and non-condensing atmosphere

Ambient operating temperature 0°C to 50°C (32°F to 122°F)

When ordering switches, be sure to order faceplates as they are not included with the switch. Screwless faceplates are available in White (1-6 gang), Ivory (1-6 gang), and Grey (1 & 2 gang). Stainless Steel faceplates with visible mounting screws are available in 1-6 gang configurations.
Wiring Configurations

An 8700 series switch can be combined with a Diversa occupancy sensor to control the same load. The switch and sensor are connected to the same relay. The load is then controlled by whichever device last actioned (i.e. if the switch button is pressed to switch lights OFF, then the lights switch OFF. If the switch button is not pressed when leaving the room, the occupancy sensor will turn the lights off.)

Dimensions Diagram

Wire Distance Chart

<table>
<thead>
<tr>
<th>Number of Relays per Switch</th>
<th>Wire Length One way measure in feet (meters)</th>
<th>Wire Gauge American Wire Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0A rated switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2000 (600)</td>
<td>18 AWG</td>
</tr>
<tr>
<td>2</td>
<td>1500 (450)</td>
<td>18 AWG</td>
</tr>
<tr>
<td>3</td>
<td>1000 (300)</td>
<td>18 AWG</td>
</tr>
</tbody>
</table>
DESCRIPTION

• Exterior Daylight Sensor for detecting and transmitting light levels
• Light level range: 0 to 65,000 lux (0-6500 fc)
• Measures and reports changes in natural light
• Connects to control system data line
• Adjustable sun shield

PART NUMBERS

WPS-5527B
• For use with LitePak systems
• Replaces WPS-5527

WPS-5527B
• For use with LitePak systems
• Replaces WPS-5527

SPECIFICATIONS

Power
• Signal draw: 15mA

Communication
• Digital Signal
• Maximum wire length 500ft.

Environment
• Stationary, non-vibrating, non-corrosive atmosphere & non-condensing humidity
• Ambient Operating Temperature:
  • -55°F to +130°F (-50°C to +55°C)

Dimensions
• Height: 3.5” (89mm)
• Maximum width: 2.0” (51mm)
• Integrated 0.5” chase nipple (includes lock ring)

Installation

• Performance is best maintained when installed in protected area to avoid inaccurate measurements due to build-up of dirt, dust, snow, or ice.
• Mount vertically on a fixed surface with sensor face directed North with a clear path to measure natural light.
• If Northern orientation is not available, position sensor to best capture natural light avoiding direct sunlight.
• If direct sunlight cannot be avoided, vertically center sun shield on sensor face.
• Once positioned, tighten chase nipple lock ring.
• Connect sensor wires as outlined below and on product (wire shielding is not required).

Wiring

• Connect Yellow and Black (non-polarized) wires to Litepak or WTP-4408

The updated mechanical design of the Douglas Lighting Controls Exterior Daylight Sensor improves weather resistance and provides a means to tune the amount of light being measured at the sensor with the provision of a sun shield. The electronic specifications remain the same to ensure backwards compatibility with existing Douglas systems.
**Technical Data**

**PART No.**  | **DESCRIPTION** | **SPECIFICATION**
---|---|---
WPC-5700 | The WPC-5700 sensor regulates dimmable ballasts to maintain a constant light level even if natural ambient light changes. The WPC-5700 sensor is ceiling mounted and measures light reflected upward from the surface below. The WPC-5700 is connected to the 2 control wires of the dimmable ballast. Up to 50 ballasts can be connected in parallel to the same sensor. All adjustments are conveniently located under the front, snap-on cover. Instructions are printed inside the cover for easy user reference. |  

**INSTALLATION & CONNECTIONS**

**Positioning**

- The sensor measures the light reflected from the surface below. Direct light from uplights or light reflected from shiny surfaces (polished floors) will yield poor results.
- Avoid measuring the light reflected from a desk top. The reflectivity of a desk top can change significantly depending upon the amount of paper on the desk. Good results are obtained when the sensor is aimed at a part of the room that has constant color and receives a representative sample of both natural and artificial light. Brief changes caused by people passing underneath the sensor will have no effect if the slow response speed is selected.

**Adjustment**

- Adjustment is best done when there is no natural light present (at night or when blinds are drawn). If a light meter is available, lay it on the surface that is to be illuminated. Adjust the sensor until the meter measures the desired illumination level. If a meter is unavailable, adjust light level to an acceptable visual value. (Note: When adjusting sensor, always stand to one side to eliminate the effect of your body on the sensor reading).
- If the room has dark surfaces (example: dark brown carpets), very little light will be reflected to the ceiling where the sensor is. In this case select the sensitive range with the “Low Light Range” selection jumper. If the room has light colored surfaces use the less sensitive range.

**WPC-5700 Regulating Daylight Sensor**

(Front view of sensor with snap-on cover removed)

**Swivel Eyeball**

Use swivel of eyeball to align sensor away from reflections or direct light. Sensor element is recessed so that side lighting effects are minimized.

**Set Point Adjustment**

Set slider to light level desired.

**High Sensitivity Jumper Pins**

In dark colored rooms, short pins with jumper provided to increase sensitivity.

**Fast Fade Rate Jumper Pins**

To test unit, short pins with jumper provided for fast fade speed.

**Input/Output**

- The power to run the WPC-5700 is obtained from the control wires of the dimmable ballast.
- Connect the control wires of all the dimmable ballasts in parallel to the WPC-5700 (see connections). Use to control from 1 to 50 ballasts.
- The WPC-5700 regulates the current in the control wires which in turn regulates the light level output by the ballast.
- The maximum wire length to the furthest ballast should not exceed 300' (100m).

**Compatible Ballasts**

- Compatible with the following dimmable electronic ballasts: Universal
- Philips/Advance® Mark VII
- Lightolier
- Connections are polarity sensitive. If WPC-5700 is malfunctioning, check polarity of all ballasts connected.

**Adjustments**

- The light level is set with the slider control on the snap-on front cover.
- Two light ranges are selectable.
- Quick and delayed response speeds are selectable.

**Environment**

- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
- Ambient operating temperature: -15°F to +140°F (-25°C to +60°C)

**DIMENSIONS & MOUNTING**

- Unit attaches to mounting ring with screws or it can be mounted to an octagon box.
- The WPC-5700 fills an octagon box. It is very important that conduit be attached at opposite ends of the box.
- Use a 2” or more deep box. If the box is 1.5”, use the mounting/spacer ring.

---

**Table**

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPC-5700</td>
<td>The WPC-5700 sensor regulates dimmable ballasts to maintain a constant light level even if natural ambient light changes. The WPC-5700 sensor is ceiling mounted and measures light reflected upward from the surface below. The WPC-5700 is connected to the 2 control wires of the dimmable ballast. Up to 50 ballasts can be connected in parallel to the same sensor. All adjustments are conveniently located under the front, snap-on cover. Instructions are printed inside the cover for easy user reference.</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

- Phillips/Advance® Mark VII
- Universal
- Lightolier
- Class 2 low voltage regulating circuit (30V max)

**Ballast**

- Violet wire
- Grey wire

**Wire**

- Ceiling tile
- Mounting ring

**Conduit**

- Octagon Box

**Adjustments**

- Under front cover plate

**Conduit**

- Octagon Box
Accessories
Steel Switch Enclosures

**PART No.**

| WN-7722-* | 2-Gang Enclosure |
| WN-7733-* | 3-Gang Enclosure |
| WN-7744-* | 4-Gang Enclosure |
| WN-7755-* | 5-Gang Enclosure |
| WN-7766-* | 6-Gang Enclosure |
| WN-7788-* | 8-Gang Enclosure |
| WN-772525-* | 2x5-Gang Enclosure |
| WN-772626-* | 2x6-Gang Enclosure |
| WN-772828-* | 2x8-Gang Enclosure |

**DESCRIPTION**

- Steel switch enclosures are suited for high abuse installations.
- Typical installations are high school gymnasiums and public & high traffic areas.
- Available in flush or surface mount or flush mount with top hinge.
- Enclosures consist of a backbox, a mounting plate, and a hinged door and trim.

**NOTES:**

- Refer to diagram below:
- Surface Mount (adds 1/8” to each edge)
- Flush Mount (adds 1” to each edge)
- Surface Mount, hinge on top
- Back box (3-5/8” deep)
- Mounting Plate
- Flush Cover

**DIMENSIONS**

**NOTE:** All styles of covers for single row switch enclosures available.

* Specify: S = Surface, F = Flush, FT = Flush with hinge across top of door.

**DIMENSIONS LEGEND**

- Box Dimensions
- Flush Cover Dimensions (F & FT style)
- Surface Cover (S style) has dimensions 0.25” bigger than box.
- All Boxes are same depth, 3.63”

**SPECSIFICATIONS**

- **Mounting & Assembly**
  - Back box (w x h) dimensions are shown for each enclosure in the diagram below.
  - Back box is 3-5/8” deep (all enclosures).
- **Finish & Color**
  - Coating is heat fused polyester epoxy finish.
  - Light almond (off white) color.
‘Decora Style’ Cover Plates for Dialog Switches

WN-974xx Series
WN-974xx series stainless steel cover plates. c/w screws.

<table>
<thead>
<tr>
<th>PART No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WN-97401</td>
<td>(1-gang stainless steel)</td>
</tr>
<tr>
<td>WN-97402</td>
<td>(2-gang stainless steel)</td>
</tr>
<tr>
<td>WN-97403</td>
<td>(3-gang stainless steel)</td>
</tr>
<tr>
<td>WN-97404</td>
<td>(4-gang stainless steel)</td>
</tr>
<tr>
<td>WN-97405</td>
<td>(5-gang stainless steel)</td>
</tr>
</tbody>
</table>

WN-803xx Series
WN-803xx series screwless plastic cover plates. White, semi-gloss finish.

<table>
<thead>
<tr>
<th>PART No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WN-80301</td>
<td>(1-gang screwless plastic)</td>
</tr>
<tr>
<td>WN-80309</td>
<td>(2-gang screwless plastic)</td>
</tr>
<tr>
<td>WN-80311</td>
<td>(3-gang screwless plastic)</td>
</tr>
<tr>
<td>WN-80312</td>
<td>(4-gang screwless plastic)</td>
</tr>
<tr>
<td>WN-80321</td>
<td>(5-gang screwless plastic)</td>
</tr>
<tr>
<td>WN-80200</td>
<td>(blank module)</td>
</tr>
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</table>

Dimensions

For ALL

Plain View

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>1.31&quot;</td>
<td>[33]</td>
</tr>
<tr>
<td>2.62&quot;</td>
<td>[66]</td>
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</table>

Side View

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
</tr>
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<tbody>
<tr>
<td>0.25&quot;</td>
<td>[6.4]</td>
</tr>
<tr>
<td>4.6&quot;</td>
<td>[117]</td>
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2-Gang

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
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<tbody>
<tr>
<td>4.6&quot;</td>
<td>[117]</td>
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</table>

3-Gang

<table>
<thead>
<tr>
<th>Dimension</th>
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</thead>
<tbody>
<tr>
<td>6.4&quot;</td>
<td>[162]</td>
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</tbody>
</table>

4-Gang

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>8.2&quot;</td>
<td>[208]</td>
</tr>
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</table>

5-Gang

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10&quot;</td>
<td>[254]</td>
</tr>
</tbody>
</table>

Dialog Lighting Control System  www.DouglasLightingControls.com
EPC-A-1
20A Emergency Power Control (Junction Box/Fixture Mount)

Project:
Model No.:
Comments:

APPLICATION

In the past, emergency lights were kept on 24 hours a day to meet life safety codes. Now, you can use a UL 924 listed Emergency Power Control, Model EPC-A-1, to convert regular light fixtures into approved emergency lights. The EPC-A-1 saves energy and money while ensuring compliance with both life safety and energy codes.

During normal operation, the same room switch, occupancy sensor, relay panel, or lighting control switches regular and emergency fixtures on and off simultaneously.

During a utility power interruption, the EPC-A-1 automatically bypasses the regular lighting controls, turning the emergency lights ON, regardless of switch position.

The EPC-A-1 is ceiling or wall mounted in a junction box with a single gang plaster ring and is usually located in the area where the emergency fixtures are installed.

MOUNTING

- Patented Automatic Diagnostic Feature

The unique feature of the EPC-A-1 is the ability to place the unit above the accessible ceiling tile because the unit does not require an accessible test switch. Instead, when the room switch is turned off, the emergency luminaires stay on for 2.5 seconds and indicate that an emergency power source was available and that the EPC-A-1, ballast, and lamp(s) are all functioning correctly. This feature replaces a test switch and is approved for this purpose.

- Power indicator LED for utility power (green)

LED COMPATIBLE
UL924 LISTED
5 YEAR WARRANTY
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>EPC-A-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSING INPUT</td>
<td>120V / 277V</td>
</tr>
<tr>
<td>LOAD RATING</td>
<td>120V - 277V (20A)</td>
</tr>
<tr>
<td>BALLAST LOAD RATING</td>
<td>20A (120-277V)</td>
</tr>
<tr>
<td>INCANDESCENT LOAD</td>
<td>1200W (120V) / 1500W (277V)</td>
</tr>
<tr>
<td>WARRANTY</td>
<td>5 Year Replacement Warranty</td>
</tr>
<tr>
<td>MOUNTING</td>
<td>4-11/16” Junction Box w/ blank cover</td>
</tr>
<tr>
<td>RATING</td>
<td>UL94V-0 Flame Rating</td>
</tr>
<tr>
<td>SHIPPING WEIGHT</td>
<td>8 oz.</td>
</tr>
<tr>
<td>TEMPERATURE</td>
<td>32°F - 140°F (0°C - 60°C)</td>
</tr>
<tr>
<td>COLOR</td>
<td>BLACK</td>
</tr>
<tr>
<td>SIZE (WITH MOUNTING EARS)</td>
<td>3-3/4” x 1-3/4” x 1-1/2”</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

EPC-A-1

- For canadian version, see EPC-A-1-cUL

**ADDITIONAL RESOURCES**

- Installation Sheet
- FAQ Sheet
- Alternative Wiring Sheet
- Terms & Conditions/Warranty Information
**APPLICATION**

The UL924 Listed RRU-1 emergency shunt relay allows emergency luminaires powered by an emergency generator or inverter to be switched off, but automatically illuminate during a utility power failure or room power interruption, regardless of local switch position. This meets NFPA 1104-2.4.1, OSHA, and all relevant life safety codes.

The RRU-1 line voltage input is connected to a sensing circuit. Upon power interruption on the sensing input, the output relay contact drops into a N.C. position and turns on the emergency load(s). Review wiring diagram, on reverse, for details.

**FEATURES**

- The RRU-1 can be installed above the suspended ceiling in a junction box or in the light fixture ballast channel. These mounting methods ensure the RRU-1 is accessible, complying with all codes and requirements.

---

**MOUNTING**

The RRU-1 can be installed above the suspended ceiling in a junction box or in the light fixture ballast channel. These mounting methods ensure the RRU-1 is accessible, complying with all codes and requirements.

---

**LED COMPATIBLE**

**WARRANTY**

5 YEAR
WIRING DIAGRAM

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>RRU-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSING INPUT</td>
<td>120V / 277V</td>
</tr>
<tr>
<td>LOAD RATING</td>
<td>120V - 277V (20A)</td>
</tr>
<tr>
<td>BALLAST LOAD RATING</td>
<td>20A (120-277V) (Contact #1)</td>
</tr>
<tr>
<td>INCANDESCENT LOAD</td>
<td>1800W (120V) / 1500W (277V)</td>
</tr>
<tr>
<td>WARRANTY</td>
<td>5 Year Replacement Warranty</td>
</tr>
</tbody>
</table>
| LOAD | Contact #1 20A (120-277V)  
| | Contact #2 1A (30V DC) |

| MOUNTING | 4-11/16” Junction Box w/ blank cover |
| RATING | UL94V-0A |
| SHIPPING WEIGHT / COLOR | 8 oz. / Black |
| TEMPERATURE | 32ºF - 140ºF (0ºC - 60ºC) |
| SIZE W/ MOUNTING EARS | 3-3/4” x 1-3/4” x 1-1/2” |

ORDERING INFORMATION

RRU-1-VOLT

- VOLT = 120V or 277V
- For Canadian version, see RRU-1-cUL
- For Form C Contact (N/O & N/C) 10 A rated, see RRU
- For N/O Contact 20 A rated, see RRU-2
- For Plenum mounting, see RRU-Plenum Mount

ADDITIONAL RESOURCES

- Installation Instructions
- Theory of Operation & FAQ
- Alternative Wiring Diagrams
- Terms & Conditions/Warranty Information

NOTE: Shunt relays require a dedicated switch for emergency lighting. To use the same switch for normal and emergency lighting, use model EPC-1 or EPC-A-1.
Emergency Power Failure ON Device WRE-9242/WRE-9242-G

**Part No.**
- WRE-9242
  - Power Failure ON Device for WR-61xx Relays
- WRE-9242-G
  - Power Failure ON Device for Satellite Panel Relays

**Description**
- The Emergency Power Failure ON Device is used to switch ON two emergency relays in the event of a power failure.
- Upon power failure, the device will automatically switch ON two relays that are powered by utility or generator feed. This ensures that circuits will be energized if normal power is lost.
- The WRE-9242 switches WR-61xx series HID Latching Relays in a Douglas Lighting Control Panel.
- The WRE-9242-G switches the top two 704L relays in a Douglas Satellite Panel.
- The Emergency Power Failure ON Device mounts inside the Class 2 section of the Lighting Control Panel (WRE-9242) or the Satellite Panel (WRE-9242-G).

**Connections for WRE-9242**

The WRE-9242 mounts inside the relay panel on DIN rail. It connects directly to the 2 relays controlling the emergency lighting circuits and to the transformer as shown in the schematic.

**Connections for WRE-9242-G**

The WRE-9242-G mounts inside the Satellite Panel on DIN rail in the area above the horizontal voltage barrier. Relays 1 and 2 (top two relays) control the emergency circuits. The WRE-9242-G connects directly to the 4-position terminal block near the relays and to the transformer as shown in the schematic.

**Technical Data**

**Specifications**
- **Inputs**
  - Power: 24VAC 250mA
  - Class 2 Low Voltage device.
- **Outputs**
  - WRE-9242
    - Two outputs provided for Douglas WR-61xx Series HID Latching Relays.
  - WRE-9242-G
    - Two outputs provided for Douglas 704L Latching Relays in Satellite Panels.
- **Relay Interface**
  - Each of the unit's two relay outputs sends a relay ON pulse when the input 24VAC power is interrupted.
- **Environment**
  - Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
  - Ambient operating temperature: +15° to +120°F (-10° to +50°C)

**Dimensions & Mounting**
- The WRE-9242 or WRE-9242-G Interface is a sealed plastic package with screw wire terminals built into it.
- The unit mounts onto standard 35mm DIN rail. A small 2” DIN rail piece is included for mounting.
- Locate the WRE-9242 in the relay panel near the relays and transformer.
- Locate the WRE-9242-G in the Satellite Panel on the backpan in the area above the horizontal voltage barrier.

**Table**

<table>
<thead>
<tr>
<th>PART No.</th>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRE-9242</td>
<td>Power Failure ON Device for WR-61xx Relays</td>
<td>Inputs</td>
</tr>
<tr>
<td>WRE-9242-G</td>
<td>Power Failure ON Device for Satellite Panel Relays</td>
<td>Outputs</td>
</tr>
</tbody>
</table>

**Website**
www.DouglasLightingControls.com