

# INSTRUCTIONS

## RTLED 1x4/2x2/2x4 TROFFER RETROFIT INSTALLATION



RAB Lighting is committed to creating high-quality, affordable, well-designed and energy-efficient LED lighting and controls that make it easy for electricians to install and end users to save energy. We'd love to hear your comments. Please call the Marketing Department at 888-RAB-1000 or email: [marketing@rablighting.com](mailto:marketing@rablighting.com)



1x4



2x2



2x4

### IMPORTANT

#### READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

RAB fixtures must be wired in accordance with the National Electrical Code and all applicable local codes. Proper grounding is required for safety. THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.

**WARNING: Make certain power is OFF before installing or maintaining fixture. No user serviceable parts inside.**

**WARNING: Risk of fire or electric shock. Luminaire wiring and electrical parts may be damaged when drilling for installation of LED retrofit kit. Check for enclosed wiring and components.**

**WARNING - Risk of fire or electric shock. Install this kit only in luminaires that have the construction features and dimensions shown in the photographs and/or drawings and where the input rating of the retrofit kit does not exceed the input rating of the luminaire.**

**WARNING - To prevent wiring damage or abrasion, do not expose wiring to edges of sheet metal or other sharp objects to lampholder lead wires by employing applicable connectors.**

**WARNING - Risk of fire or electric shock. LED Retrofit Kit installation requires knowledge of luminaires electrical systems. If not qualified, do not attempt installation. Contact a qualified electrician.**

### RECESSED CEILING MOUNTING

The fixture is suitable only for INDOOR RECESSED CEILING application. To mount in an insulated or non-insulated ceiling exposed **Flat Tee Grid Ceiling** follow the steps below.

1. Remove existing lamps, door frame (if applicable), reflector and cover. Depending on clearance space, ballast may need to be removed.
2. Gently lift the original luminaire housing and slide in both side brackets between the **housing** and the T-grid. Lower the housing to rest on the brackets, securing them in place. (fig. 1 & 2)
3. Hang the retrofit kit body by hooking the **T-hinges** into the respective on one mounting brackets. (fig. 3)
4. Attach the safety cables to the original luminaire housing using the self-tapping hex screws provided.
5. Connect the retrofit kit power to the AC power. Insert the black wire (line) from the power into the provided LED quick connector marked with a black circle. Insert the white wire (neutral) into the unmarked port. Connect the power supply to the retrofit kit.
6. Wire the existing fixture's green wire (ground) to the retrofit kit's green wire. If a ground wire is missing from the power supply, attach the retrofit kit's ground wire directly to the luminaire **housing**.
7. For 4ft long fixtures, secure the housing by locking to the side bracket. Secure the left and center bracket together and then right-side latch. Be sure the side bracket is pushed close to retrofit kit.

Fig: 1

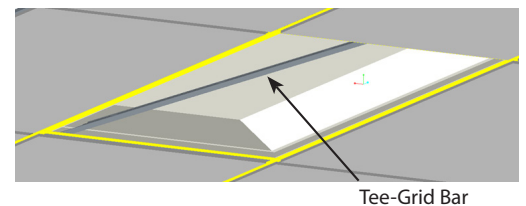


Fig: 2

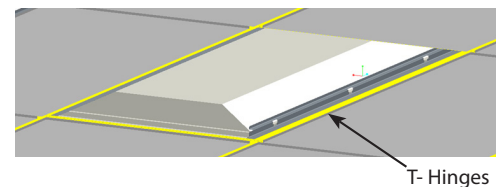
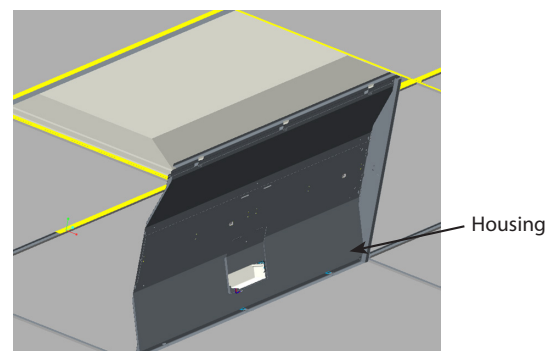


Fig: 3



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### 0-10V DIMMABLE WIRING

Universal voltage driver permits operation at 120V thru 277V, 50 or 60 Hz. 0-10V control wires must be rated for 300V minimum. For 0-10V Dimming, follow the wiring directions shown below (*fig. 4*).

1. Connect the black fixture lead to the **LINE** supply lead.
2. Connect the white fixture lead to the **COMMON** supply lead.
3. Connect the **GROUND** wire from fixture to supply ground.  
Do NOT connect the **GROUND** of the dimming fixture to the output.
4. Connect the purple fixture lead to the (V+) DIM lead.
5. Connect the pink (*or gray*) fixture lead to the (V-) DIM lead.

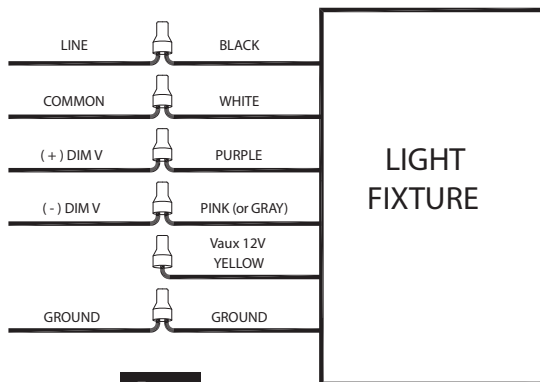


Fig: 4

### CLEANING & MAINTENANCE

**CAUTION: Be sure fixture temperature is cool enough to touch. Do not clean or maintain while fixture is energized.**

1. Clean polycarbonate lens & fixture with non-abrasive cleaning solution.
2. Do not open fixture to clean the LEDs. Do not touch the LEDs.

### TROUBLESHOOTING

1. Check that the line voltage at fixture is correct. Refer to wiring directions.
2. Be sure the fixture is grounded properly.

*Note: These instructions do not cover all details or variations in equipment nor do they provide for every possible situation during installation, operation or maintenance.*

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# BATTERY BACKUP MODELS

## WIRING

**CAUTION: FOR BATTERY BACKUP FIXTURE.** Voltage can be present in **BATTERY**. To prevent high voltage from being present on output leads, Inverter connector must be open. Do not join **BATTERY** connector until installation is complete and AC power is supplied to the emergency driver (*fig. 5*).

**NOTE:** Make sure that the necessary branch circuit wiring is available. An **UNSWITCHED** AC source of power is required. The emergency driver must be fed from the same branch circuit as the LED driver.

**CAUTION:** Do not use any supply voltage other than 120-277V 50/60 HZ.

1. Connect **UNSWITCHED HOT** fixture lead to **HOT AC** supply line.
2. If using an **UNSWITCHED** circuit, connect **UNSWITCHED** and **SWITCHED** lines together.
3. If using a **SWITCHED** circuit, connect **SWITCHED HOT** AC fixture lead to the external **SWITCHED**.
4. Connect the **NEUTRAL** fixture lead to the **NEUTRAL** supply line.
5. For 0-10V Dimming, connect **DIM (+)** and **DIM (-)** to the supply **DIM(+)** and **DIM(-)**.
6. All unused leads must be capped and insulated.
7. Connect **GROUND** lead from the fixture to the supply **GROUND**. **Do not connect GROUND to the output leads.**
8. After installation is complete, supply AC power to the fixture and connect the **BATTERY**.
9. When power is on, the fixture should be on and the Charging Indicator Light should illuminate to indicate the battery is charging.
10. Once the **BATTERY** has charged for at least one hour, a short duration test may be performed by pressing the test button.
11. After the battery has charged for 24 hours, a long duration test can be performed by shutting power to the fixture.

## OPERATION

1. When AC power is applied, the charging indicator light is illuminated, indicating that the **BATTERY** is being charged.
2. When power fails, the standby power automatically switches to emergency power (*internal battery*), operating at reduced illumination. The emergency driver will operate in stand by power for a minimum of 90 minutes.
3. When AC power is restored, the emergency driver automatically returns to charging mode.

## MAINTENANCE

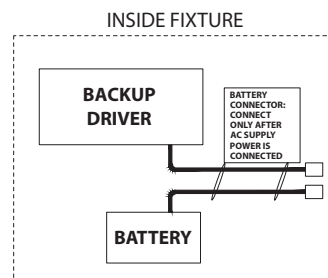
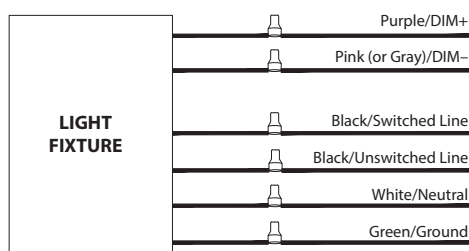
Although no routine maintenance is required to keep the emergency driver functional, it should be checked periodically to ensure that it is working. The following schedule is recommended:

1. Visually inspect the charging indicator light monthly. It should be illuminated.
2. Test the emergency operation of the fixture at 30-day intervals for a minimum of 30 seconds.
3. Conduct a 90-minute discharge test once a year. Fixture would operate at reduced illumination for a minimum of 90 minutes.

## TROUBLESHOOTING

1. Is the fixture grounded properly?
2. If the charging indicator light does not illuminate after pressing the test button, check if battery is connected properly.

FIG. 5



**Note:** These instructions do not cover all details or variations in equipment nor do they provide for every possible situation during installation, operation or maintenance.



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### Easy Answers

[rablighting.com](http://rablighting.com)  
Visit our website for product info

**Tech Help Line**  
Call our experts: 888 722-1000

**e-mail**  
Answered promptly - [sales@rablighting.com](mailto:sales@rablighting.com)

**Free Lighting Layouts**  
Answered online or by request

RTLED-IN-0322  
73520-RAB

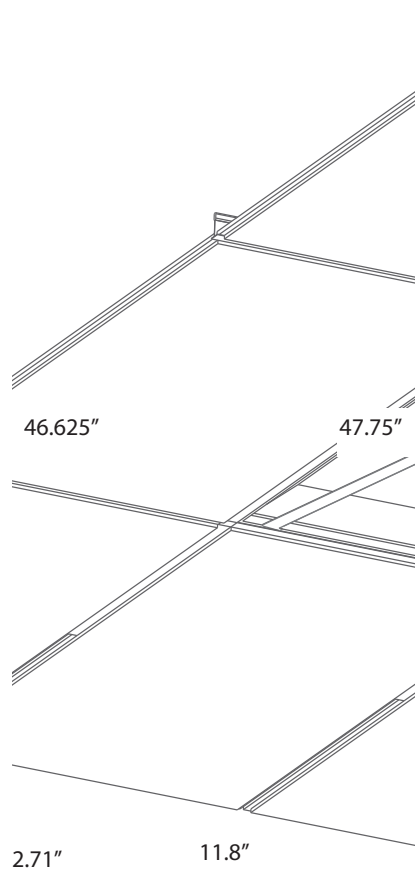
**RAB WARRANTY:** RAB's warranty is subject to all terms and conditions found at [rablighting.com/warranty](http://rablighting.com/warranty)

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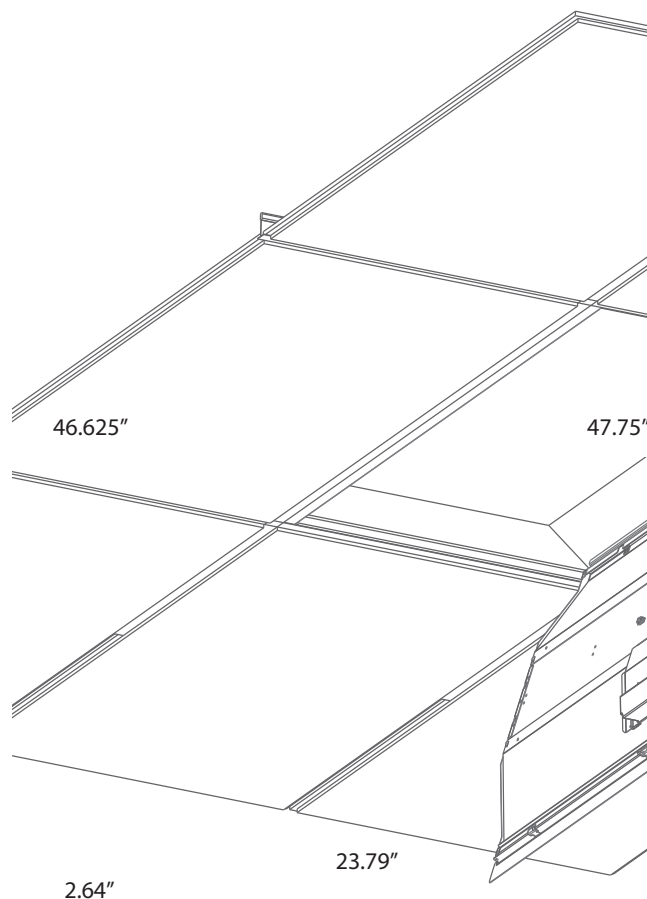
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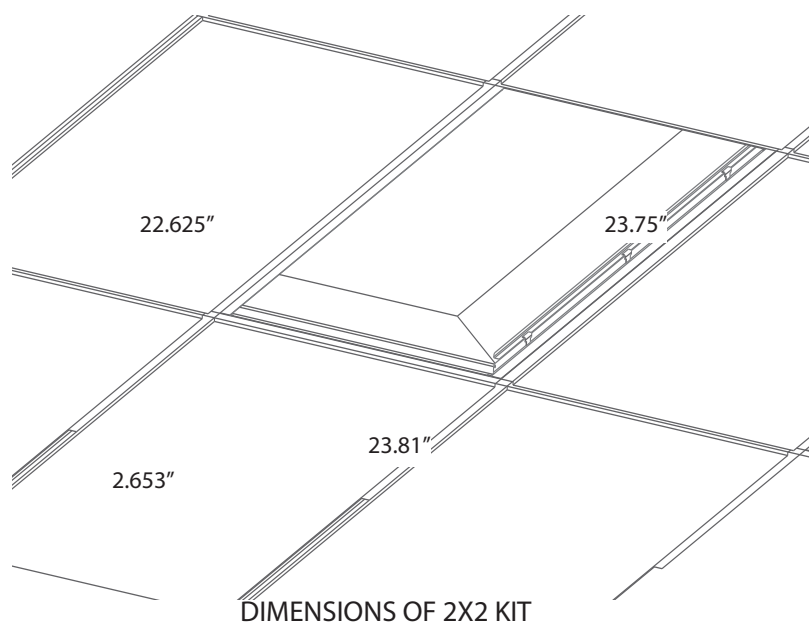
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DIMENSIONS OF 1X4 KIT



DIMENSIONS OF 2X4 KIT



DIMENSIONS OF 2X2 KIT

# 19724 MICROWAVE SENSOR FOR D10

Thank you for buying RAB lighting fixtures. Our goal is to design the best quality products to get the job done right. We'd like to hear your comments. Call the Marketing Department at 888-RAB-1000 or email: marketing@rabweb.com



19724 Sensor



Antenna

## IMPORTANT

**READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.**

19724 is used with a120-277VAC dimmable driver and comes with a sensor antenna. Sensor is shipped with Factory Settings outlined below under **DIP Switch Settings**. If settings other than factory pre-sets are desired, the consumer may change DIP Switch Settings. For more detailed control of the sensor, the consumer can purchase MVSREM wireless commissioning tool (remote) to re-program sensor settings.

## DIP SWITCHES

Factory Settings shown below

## SPECIFICATIONS

Sensor is not suitable for wet locations.

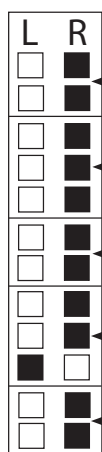


Fig. 1

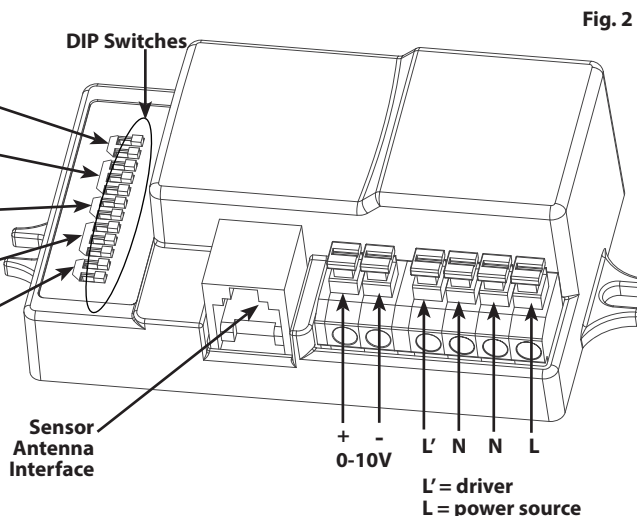


Fig. 2

## DIP Switch Settings

Switch positions referred to as R for right position and L for left position when looking at sensor in orientation shown in Fig. 2, in which all switches are R.

See Fig. 1 and 2 for each setting's corresponding switches. Setting options for each category are noted in (parenthesis) below.

**Factory Settings:** designated in **bold** for each category

### Detection Area:

- **100% (RR)**
- **75% (RL)**
- 50% (LR)
- 10% (LL)

**Time Delay:** how long lamp remains on at 100% after last recognized motion

- **5s (RRR)**
- 30s (RRL)
- 1min (RLR)
- 5min (RLL)
- 10min (LRR)
- 20min (LRL)
- 30min (LLL)

### Daylight Sensor:

- **Disabled (RR)**
- 5 fc (Daylight) (RL)
- 1 fc (Twilight) (LR)
- .2 fc (Darkness) (LL)

**Cut Off Period:** how long reduced light output lasts after time delay period before fixture switching off

- 0s (RRR)
- **10s (RRL)**
- 1min (RLR)
- 5min (RLL)
- 10min (LRR)
- 30min (LRL)
- 1hr (LLR)
- Always (LLL)

**Dim Level:** light output level after time delay

- **10% (RR)**
- 20% (RL)
- 30% (LR)
- 50% (LL)

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## OPERATION

### Multi-level Dimming:

- 100% light
- Dimmed to: 10, 20, 30, 50\*%  
*\*50% not on remote*

- Off

### Cut Off Time Adjustment:

- Once room is vacated, light dims to selected % after chosen hold time elapses

### Daylight Sensing:

- Surrounding natural light keeps fixture light off until room is occupied and natural light levels drop to selected level

### 8 Hour\* Manual Mode:

- Turn fixture off-on 3 times within 3 seconds
- Green LED on antenna will flash and fixture will flash 3 times if done correctly
- Fixture will remain 100% for 8 hours, then sensor will come on automatically
- To cancel, turn the fixture off-on within 1 second

*\*Times out after one 8-hour cycle*

### Ambient Daylight Threshold\*:

- Turn fixture off-on 2 times within 2 seconds
- Green LED on antenna will flash slowly for 5 seconds and fixture will blink twice if done correctly
- Surrounding fc will be measured and recorded for 1 second
- Green LED on antenna and fixture will light for 10 seconds to indicate successful fc recording
- Most recent fc measurement overwrites any prior

*\*DIP settings (pg 1) and ambient lux overwrite each other depending on latest action*

### Scene Mode:

- 100% detection range and 10% cut off dimming
- Scene 1 (SC1):** 1 min hold-time, 10 min cut off period, .2 fc daylight sensor
- Scene 2 (SC2):** 5 min hold-time, 10 min cut off period, .2 fc daylight sensor
- Scene 3 (SC3):** 10 min hold-time, 30 min cut off period, 1 fc daylight sensor
- Scene 4 (SC4):** 10 min hold-time, always on bi-level cut off period, 5 fc daylight sensor

## SENSOR COVERAGE DIAGRAM

Below diagrams represent best average coverage from lab testing. Actual coverage may vary as metal on the fixtures can interfere with microwaves from the sensor

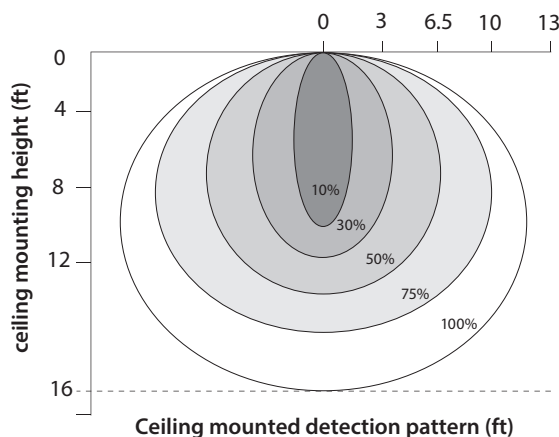


Fig. 3

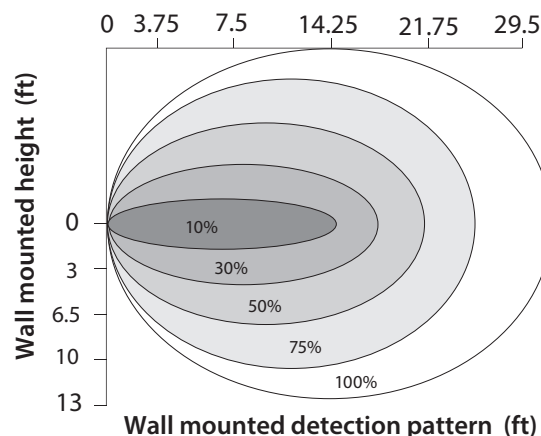


Fig. 4

## SENSOR TECHNICAL DATA

**Capacitance Load:** 400W at 120V, 800W at 230V, 1000W at 277V

**Operating Temperature:** -20°C to +60°C (-4°F to +140°F)

**Relay:** Zero-cross relay

**Maximum Mounting Height:** 16 ft.

**Customizable Detection Area:** 10, 50, 75 or 100%

**Time Delay:** 5s, 30s, 1min, 5min, 10min, 20min, 30min

**Cut Off Period:** 0s, 10s, 1min, 5min, 10min, 30min, 1hr, Bi-Level

**Cut Off Dimming Level:** 10, 20, 30, 50%

**Cut Off Power:** Less Than 1W

**Daylight Threshold:** About .2-5 fc or Disabled

**Sensor Principle:** High Frequency

**Microwave Frequency:** 5.8GHz +/- 75MHz

**Microwave Power:** <0.2mW

**Detection Range Max:** 52 ft. across, 33 ft. high

**Detection Angle:** About 30 to 150 degrees

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## REMOTE

Sensor will beep one time to indicate remote received successfully

Remote settings will override DIP Switch settings

**ON/OFF:** disables sensor; light is permanently\* on or off

\*un-do permanent on/off by selecting either Auto-Mode, RESET, or any Scene mode button

**Auto Mode:** sensor activates and all previously selected settings remain programmed

**RESET:** overrides selected settings; reverts to DIP settings

**Dim buttons:** + dims up and - dims down, adjusting lamp brightness

**Black Button:** no function

**Test 2s:** automatic\* test mode with 2 second time delay; disables cut off period and daylight sensor

\*un-do automatic test mode by selecting either RESET, any Scene mode button, or hold time

**Power 100% & Power 80%:** adjusts power output; to save energy select Power 80%. Must return to full output after initial 10,000 hours of LEDs by pressing Power 100%.

### Group B:

**Yellow Sun Button:** Ambient Daylight Threshold; records surrounding lux level and overwrites previously recorded value

**.2, 1 and 5 fc:** sets daylight sensor at respective ambient light values

**Disable:** disables daylight sensor; any motion registered by sensor activates fixture light

**SC1, SC2, SC3, SC4:** assigns one of 4 pre-set scenes; see "Operation" on pg 2 for scene descriptions

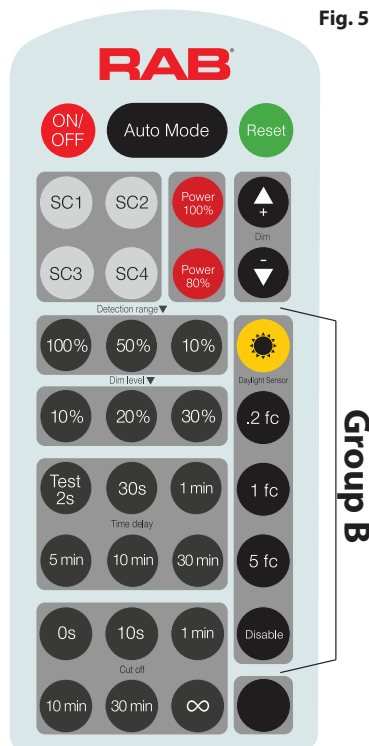


Fig. 5

## REMOTE CONTINUED

**Detection Range Button Group:** assigns detection range of 10, 50 or 100%; use coverage diagrams on pg 2 for guidance. To limit area in which motion will set off sensor, use a smaller percent. The sensor will not detect motion outside of 100% and the fixture will not light.

**Time Delay Button Group:** assigns hold time of 30 seconds, 1 minute, 5 minutes, 10 minutes, or 30 minutes

**Cut Off Button Group:** assigns cut off period of 0 seconds, 10 seconds, 1 minute, 10 minutes, 30 minutes, or 1 hour. 0 seconds gives fixture on/off control rather than dimming. + ∞ keeps the light on always (if daylight sensor is disabled) with Bi-Level dimming control.

**Dim Level:** assigns level of 10, 20, or 30% for dimmed light output after time delay passes

## TROUBLESHOOTING

If the sensor does not detect motion as expected:

- Check fixture mounting to compare fixture location and sensor coverage with the coverage diagrams on pg 2
- Adjust fixture location as necessary

Fixture will not light/sensor does not detect motion:

- Make sure ON/OFF button was not selected as this results in disabling the sensor
- Check all settings to be sure there is no conflicting selection with the ambient light level

Fixture and sensor are too active:

- Check detection area setting and reduce coverage as needed
- Increase time delay and/or adjust cut off period.

Basic Function Overview:

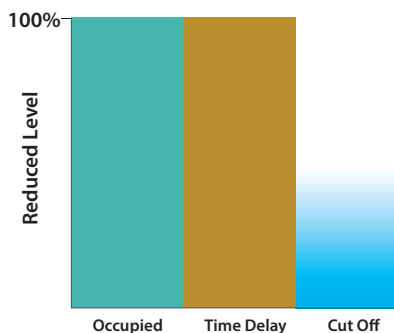


Fig. 6

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