



Radiar AR10

2 channel AC powered 0-10V
room controller with inbuilt relay



Product Overview

Radiar AR10 is a BLE5.2 controllable, dual-channel 0-10V room controller. The device is powered by 90-277VAC voltage, also has a 16A relay to use it as a room controller. It comes with dual channel 0-10V dimming outputs, 0-10V sensor input, and 12V auxiliary output. The high output ratings within the device makes it suitable to control multiple numbers of light fixtures within a room. The device comes with 150mm external wire antenna for communication.

The Lumos Controls ecosystem comprises controllers, sensors, switches, modules, drivers, gateways, and analytical dashboards, and can be connected to the Lumos Controls cloud for data analytics and configuration management. The lighting network's configuration, commissioning, and controlling can be done super-quick from any mobile device. The ecosystem is listed by the **Design Lights Consortium (DLC)**, qualifying it for energy conservation incentive programs and rebates utility companies in North America.

Specifications

Electrical

| Specifications | Value | Remarks |
|-------------------------|------------------|---|
| Input voltage | 90-277VAC | |
| Input current | 40mA @230VAC | 75mA @110VAC |
| Frequency | 50-60Hz | |
| Load voltage | 90-277VAC | |
| Load rating | 1920W @ 120VAC | Max 16A Load current for electronic ballast |
| | 4432W@ 277VAC | |
| | 3680W@ 230VAC | |
| | 1800W@120/277VAC | Tungsten |
| Max load output wattage | 4.4kW | @277VAC |
| Inrush current | 120A | |
| Surge protection | 4kV | |
| Standby current | 14mA @110VAC | 12mA @230VAC |

Features

- Dual channel 0-10V outputs suitable for Class-1 and Class-2 wiring
- Load control up to 16A @120/277VAC
- UL2043 listed for plenum applications
- Auxiliary 12V/100mA output to power the sensors
- 0-10VDC input channel to integrate with third party sensors
- Instantaneous current and voltage measurement of connected load ($\pm 1\%$ accuracy)
- BLE5.2 based non-flooding intelligent communication
- Standard ½ inch chase nipple allows easy mounting to a junction box
- Zero downtime Over-the-Air (OTA) firmware updates

0-10V Output

| Specifications | Value | Remarks |
|--------------------|--------------------------------|--------------------------------|
| Number of channels | 2 | |
| Voltage range | 0-10VDC | Tolerance: $\pm 0.2V$ |
| Current | 100mA | Max source current per channel |
| Dimming range | 0-100% | |
| Dimming curve | linear (default) / logarithmic | |

Sensor Input

| Specifications | Value |
|----------------|----------------------|
| Voltage range | 0-10VDC analog input |
| Input current | 2mA |

Auxiliary Output

| Specifications | Value |
|----------------|-------|
| Voltage | 12VDC |
| Current | 100mA |

Bluetooth

| Specifications | Value | Remarks |
|--|----------------|--|
| Frequency range | 2402 - 2480MHz | |
| Max output power | 8dBm | Conductive |
| Receiver sensitivity | -95dBm | |
| Connection distance (device to device) | 45m(147.6 ft) | Vary depending on the installation environment |

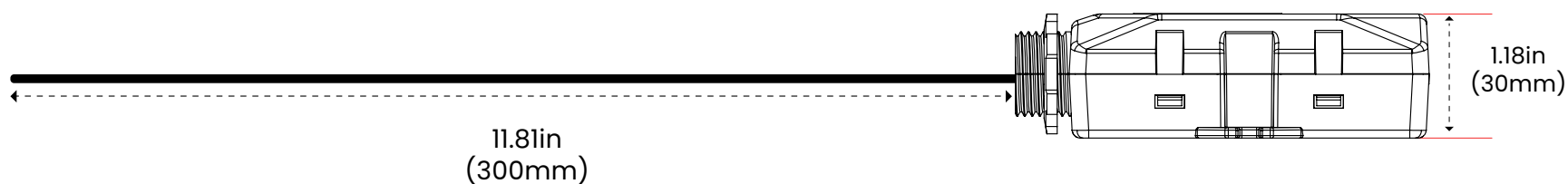
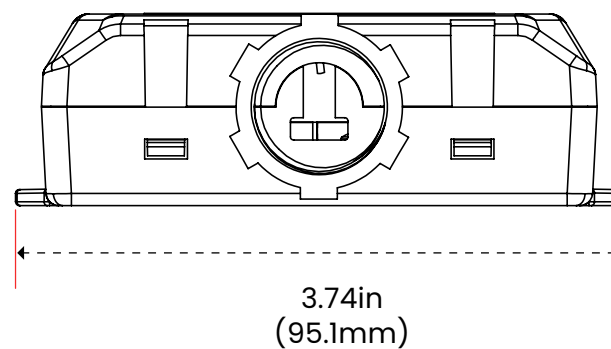
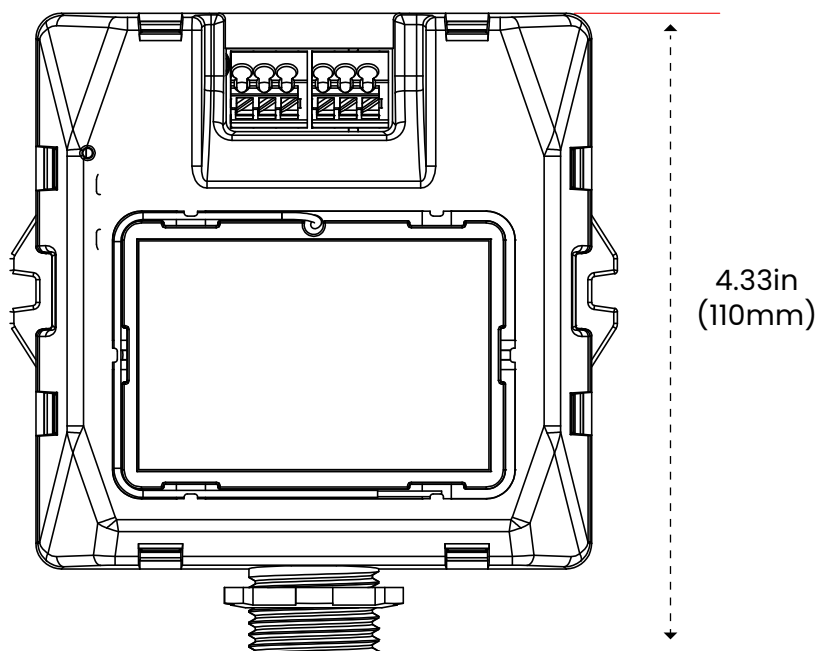
Mechanical

| Specifications | Value | Remarks |
|---------------------|---|-----------|
| Dimensions | 4.33 x 3.74 x 1.18in (110 X 95.1 X 30mm) | L X W X H |
| Weight | 160g(5.64oz) | |
| Case material | Polycarbonate | Blue |
| Flammability rating | UL 94 5VB | |

Environmental

| Specifications | Value |
|-----------------------|--------------------------|
| Operating temperature | -20 to 50°C(-4 to 122°F) |
| Case temperature | 70°C(158°F) |
| Relative humidity | 85% |

Product Dimensions



Wire Description

Wire Outputs



Connector Outputs



● 150mm wire antenna

Wire outputs

| Sl.No | Name | Color | Gauge | Rating | Description |
|-------|----------------------|--------|---------------------------------|--------|-------------------|
| ① | Line | Black | 12AWG (4.0mm ²) | 600V | 90-277VAC |
| ② | Common neutral | White | 18AWG (0.75mm ²) | 600V | 90-277VAC |
| ③ | Load | Red | 12AWG (4.0mm ²) | 600V | 90-277VAC |
| ④ | 0-10V DIM1+ | Purple | 20AWG (0.5mm ²) | 600V | 0-10VDC/ 100mA |
| ⑤ | 0-10V DIM2+ | Orange | 20AWG (0.5mm ²) | 600V | 0-10VDC/ 100mA |
| ⑥ | 0-10V DIM- /GND | Pink | 20AWG (0.5mm ²) | 600V | 0-10VDC/GND |
| ⑦ | 12VDC | Yellow | 20AWG (0.5mm ²) | 600V | 12VDC/100mA |
| ⑧ | 0-10VDC sensor input | Blue | 20AWG (0.5mm ²) | 600V | 0-10VDC/2mA |

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|-------|----------------------|-----------------|---------------|
| ① | 0-10V DIM1+ | Purple | 0-10VDC/100mA |
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| ⑤ | 12VDC | Yellow | 12VDC/100mA |
| ⑥ | 0-10V DIM- /GND | Pink | 0-10VDC/GND |

Antenna Information

150mm wire antenna



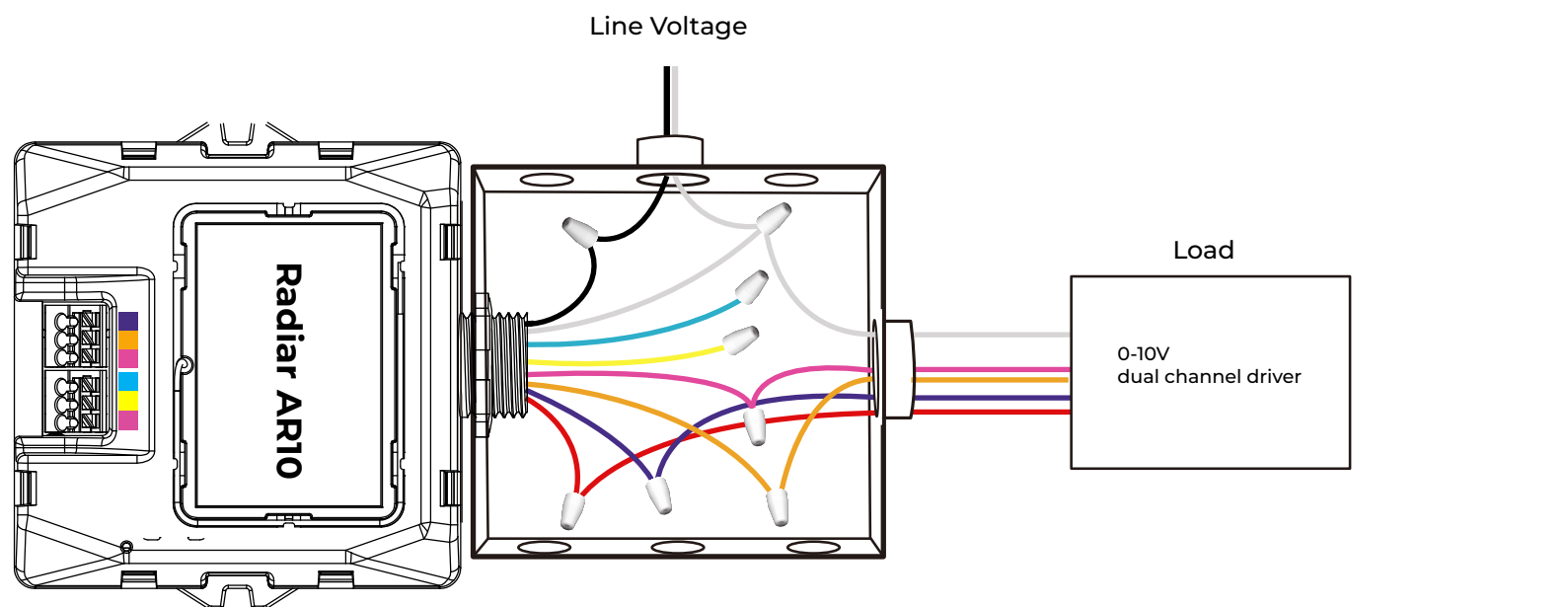
Antenna Properties









| | |
|-----------------|-----------------|
| Frequency range | 2.4GHz-2.5GHz |
| Impedance | 50Ω Nominal |
| VSWR | 1.92:1 Max |
| Return loss | -10dB Max |
| Gain(peak) | 1.5dBi |
| Cable loss | 0.3dBi Max |
| Polarization | Linear vertical |

Wiring Types

Class-1 wiring

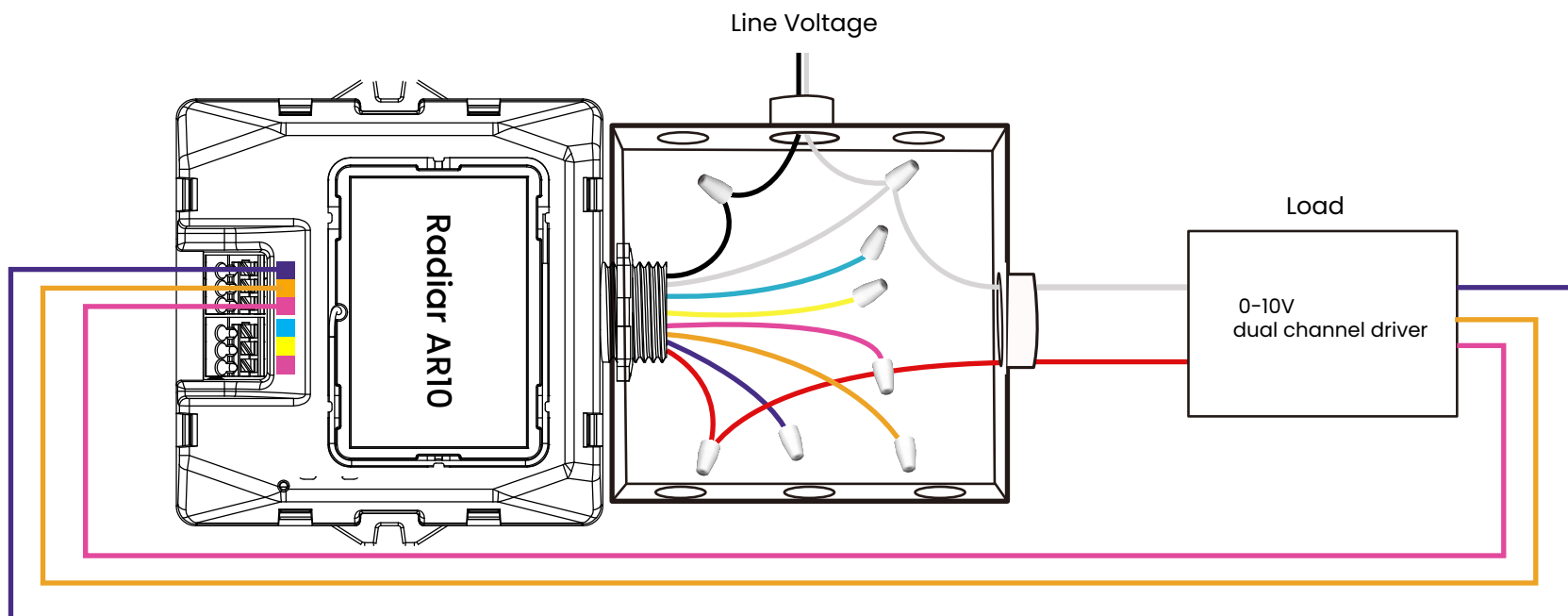
- In Class-1 wiring, the 0-10V low voltage control wires run along with the line voltage wires in a same conduit.
- Class 1 installations require wire with insulation that is rated for the voltage carried (most wiring has 600V rated insulation) and must be installed in conduit or a protective cable assembly.



| | | | | | |
|---|-----------------|---|----------------------|---|---------------------------|
|  | Line (Black) |  | 12VDC (Yellow) |  | 0-10V DIM1+ (Purple) |
|  | Neutral (White) |  | DIM- (Pink) |  | 0-10V Sensor input (Blue) |
|  | Load (Red) |  | 0-10V DIM2+ (Orange) | | |

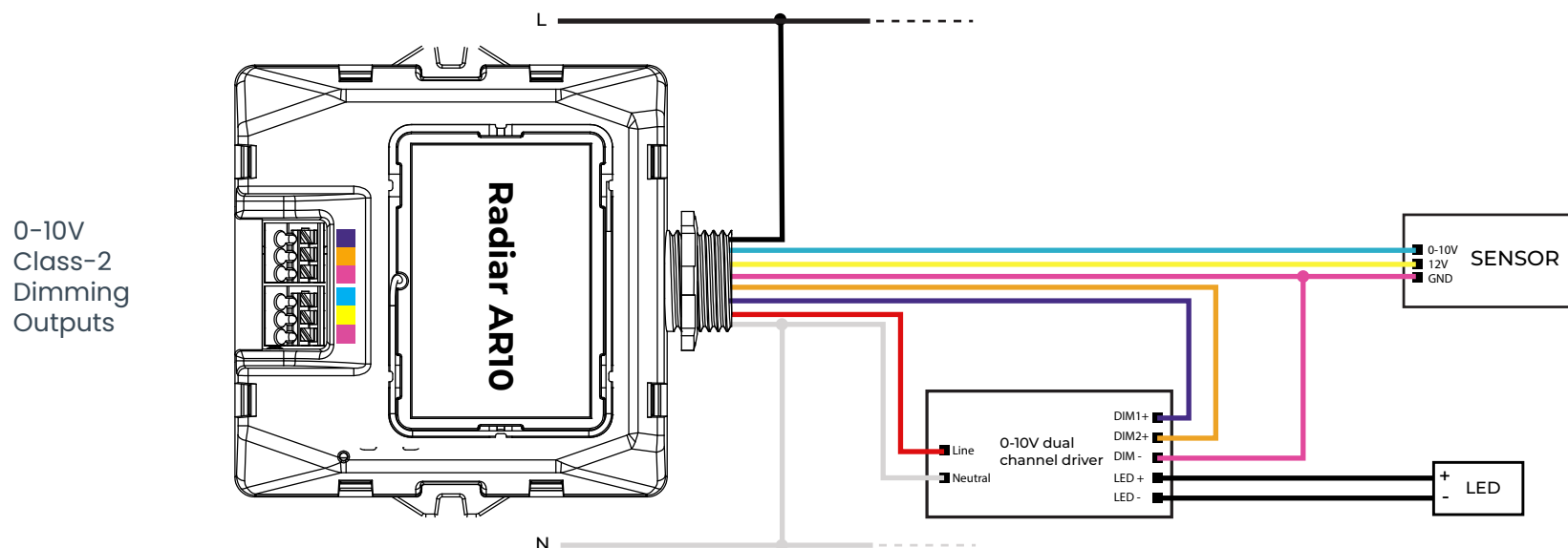
Class-2 wiring

- In Class-2 wiring, the 0-10V low voltage wires run separately in another conduit
- These circuits do not have high enough voltage or current to present a hazard to personnel and have less stringent installation requirements in regards to protection of the wiring.
- A Class-2 wiring may be installed free within the wall or ceiling without line voltage rated insulation or protection of conduit or a cable assembly

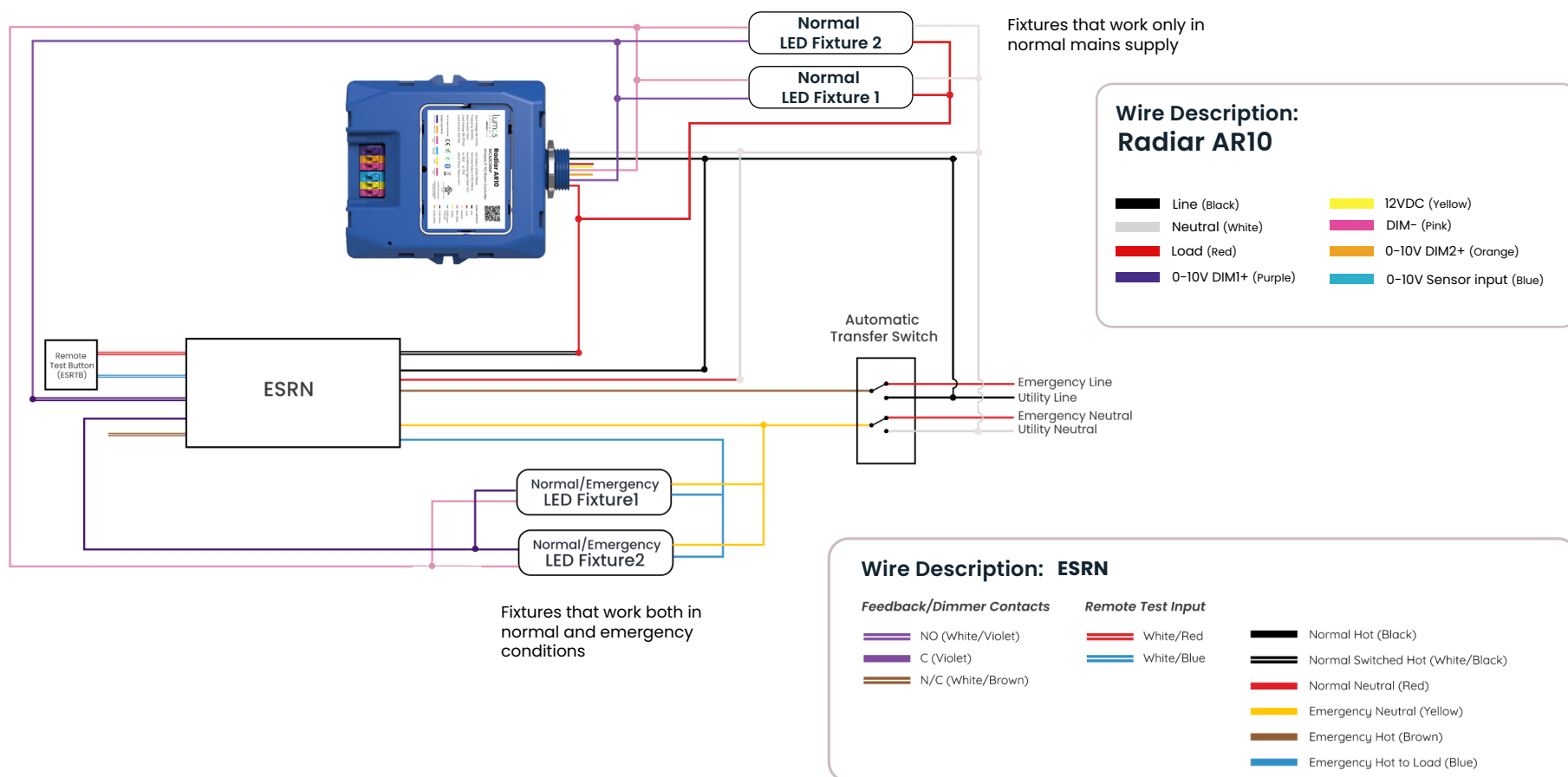


Wiring Diagram

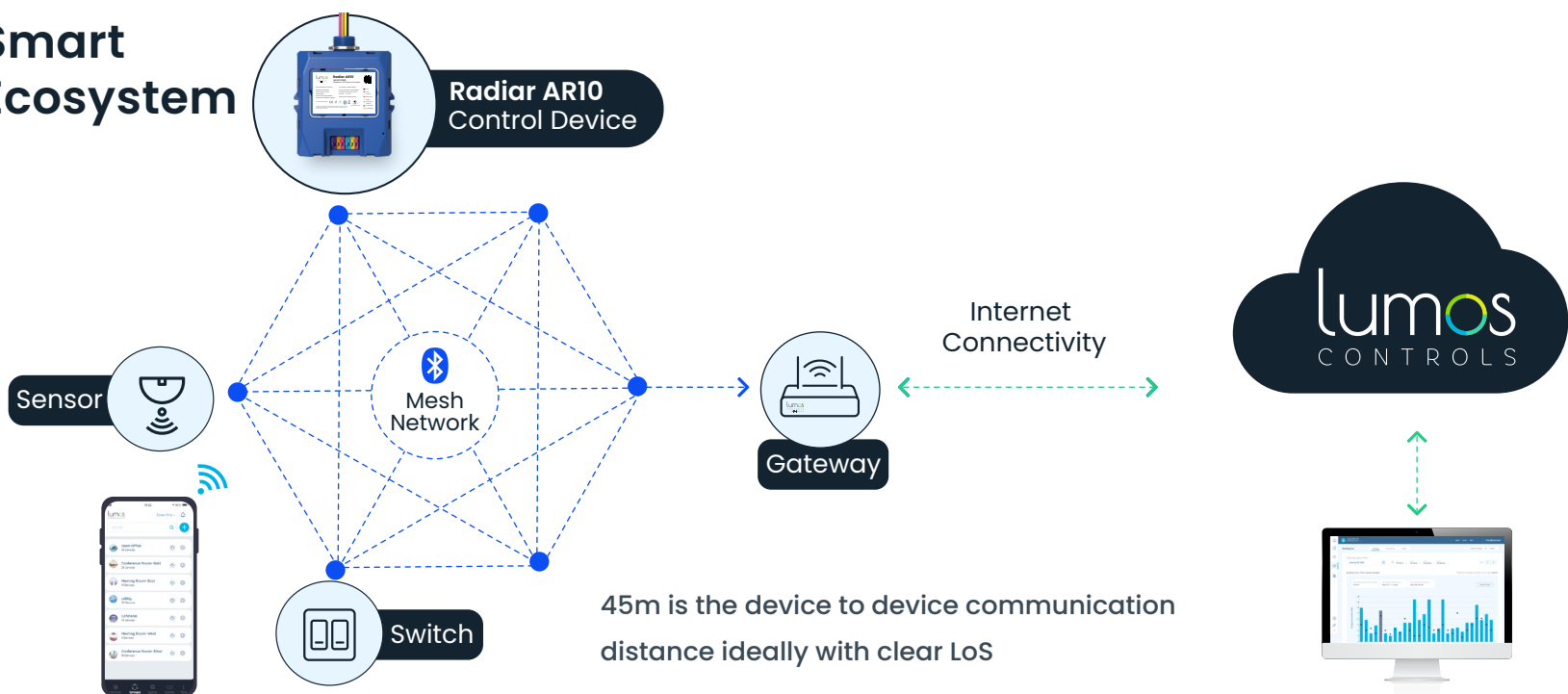
- Configuring Radian AR10 for dimming, tuning and an external sensor control.



■ Configuring Radiar AR10 for Emergency Lighting Control with ESRN(20Amp SPST)



Smart Ecosystem



| Certifications (In progress) | Details |
|---------------------------------|---|
| CE | Article 3, RED 2014/53/EU EMC test standards Safety test standard Radio test standard Health test standard: |
| cULus | Standards: UL 916, UL 2043 |
| FCC | ID: 2AG4N-WCA2CSRNP |
| RoHS 2.0 | RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU |
| REACH | Regulation (EC) No 1907/2006 of REACH |
| WEEE | Under the WEEE Directive: 2012/19/EU |
| Bluetooth | Declaration ID: D059551 |

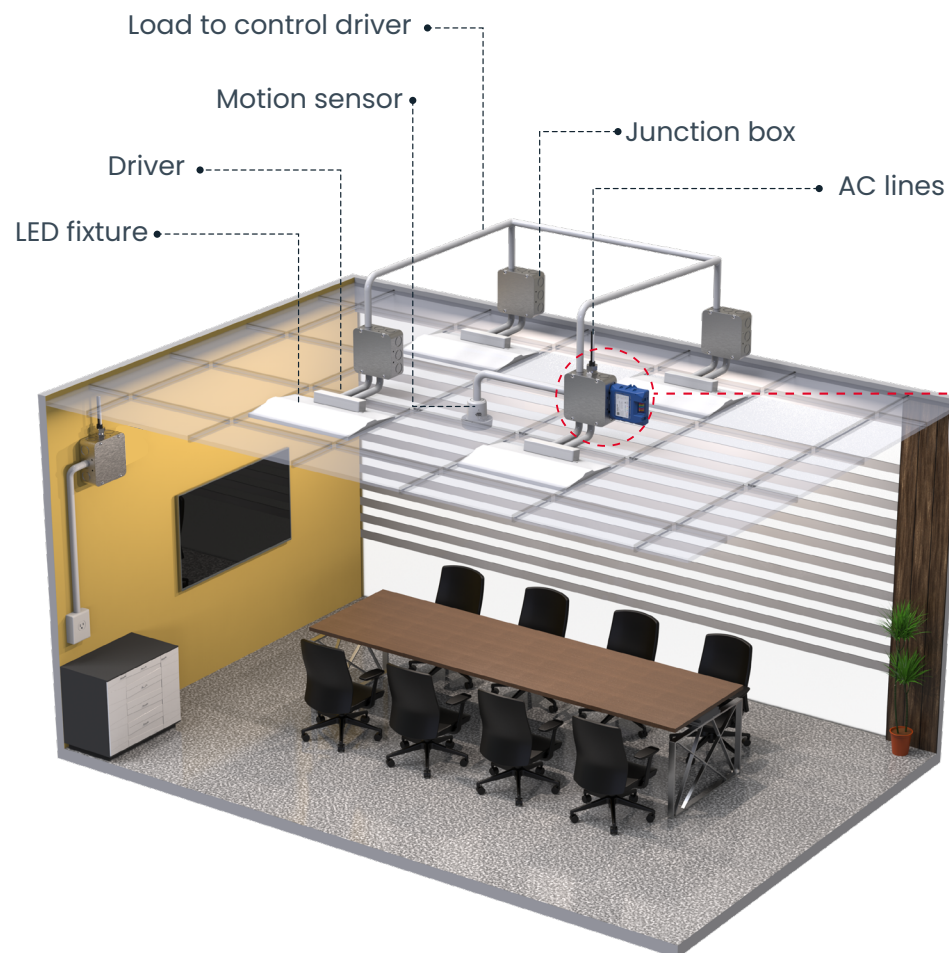
Items included in the package box

- Radiar AR10
- User manual
- Wirenuts
- Screws
- Wallplugs

Ordering Information

| Product Code | Product Name | Product Description | Communication | Voltage Rating | Sensor Input | Output Channel | Aux Power | Relay Control |
|--------------|--------------|---|---------------|----------------|--------------|---------------------|-----------|---------------|
| WCA2CSRNP | Radiar AR10 | Wireless 0-10V dual channel dimming AC powered room controller with power measurement | BLE5.2 | 90-277VAC | 0-10VDC | 0-10V 2 Channels | 12VDC | 16A Max |

Application



Radiar AR10 as
a room controller

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