



# 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

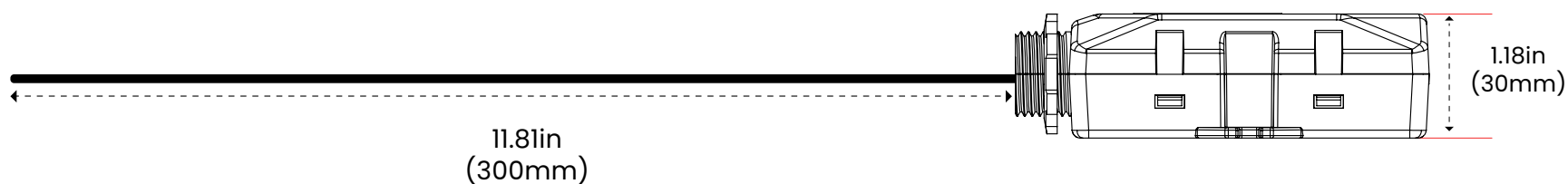
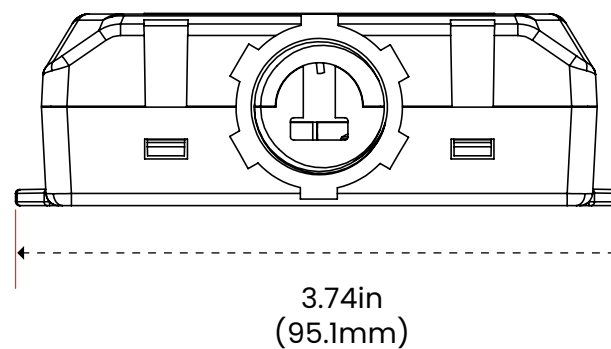
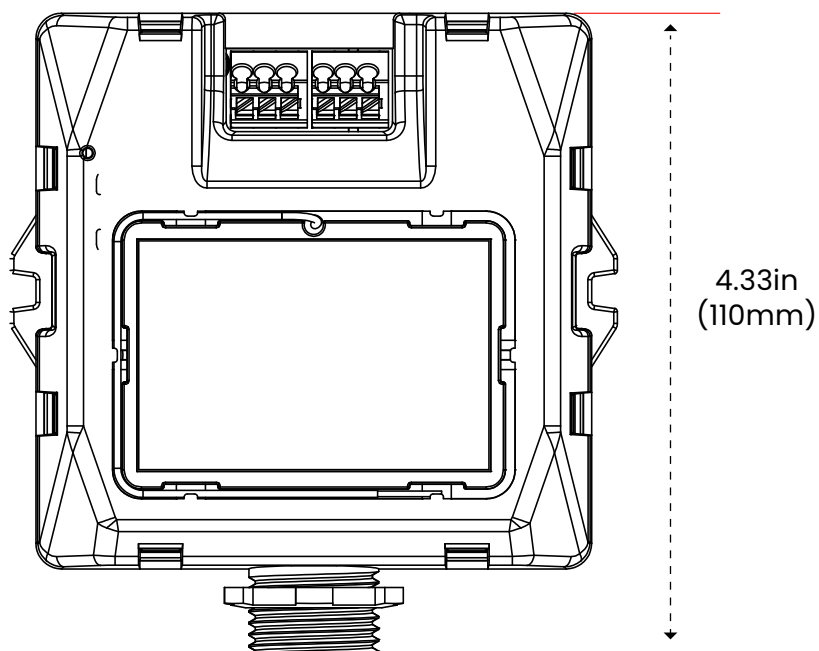
## Mechanical

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 <sup>2</sup> )	600V	90-277VAC
②	Common neutral	White	18AWG (0.75mm <sup>2</sup> )	600V	90-277VAC
③	Load	Red	12AWG (4.0mm <sup>2</sup> )	600V	90-277VAC
④	0-10V DIM1+	Purple	20AWG (0.5mm <sup>2</sup> )	600V	0-10VDC/ 100mA
⑤	0-10V DIM2+	Orange	20AWG (0.5mm <sup>2</sup> )	600V	0-10VDC/ 100mA
⑥	0-10V DIM- /GND	Pink	20AWG (0.5mm <sup>2</sup> )	600V	0-10VDC/GND
⑦	12VDC	Yellow	20AWG (0.5mm <sup>2</sup> )	600V	12VDC/100mA
⑧	0-10VDC sensor input	Blue	20AWG (0.5mm <sup>2</sup> )	600V	0-10VDC/2mA

## Connector outputs

Sl.No	Name	Connector color	Description
①	0-10V DIM1+	Purple	0-10VDC/100mA
②	0-10V DIM2+	Orange	0-10VDC/100mA
③	0-10V DIM- /GND	Pink	0-10VDC/GND
④	0-10VDC sensor input	Blue	0-10VDC/2mA
⑤	12VDC	Yellow	12VDC/100mA
⑥	0-10V DIM- /GND	Pink	0-10VDC/GND

## Antenna Information

150mm wire antenna



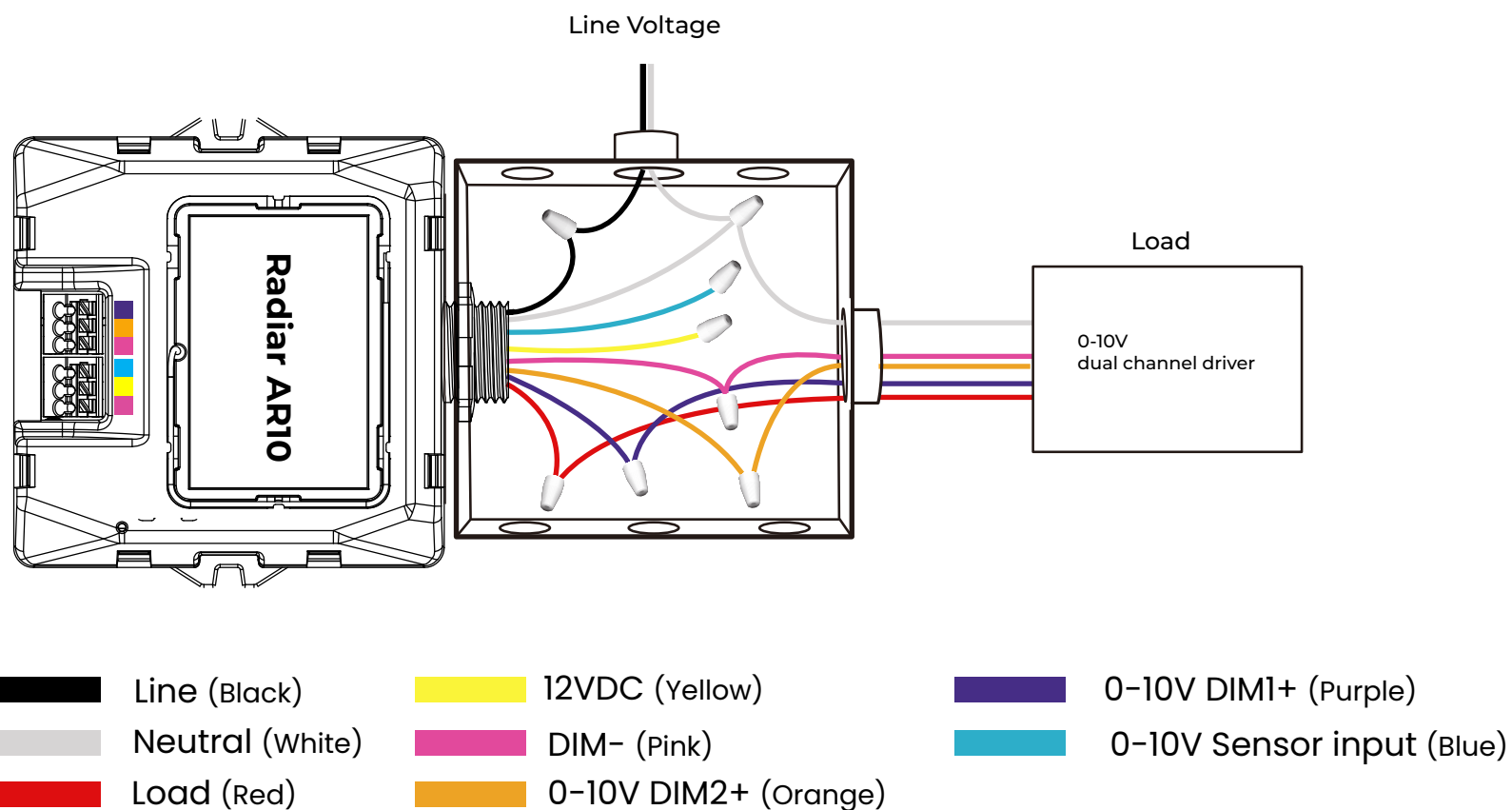
### Antenna Properties

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

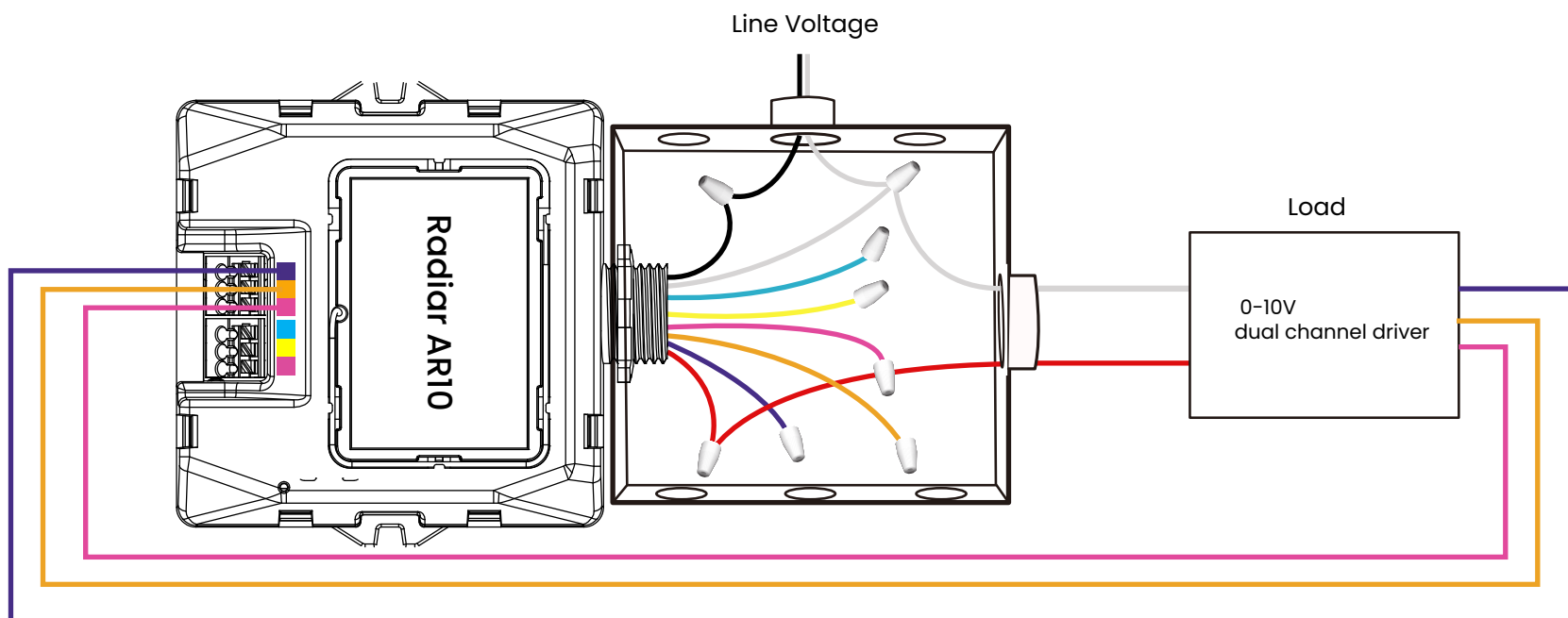
### Class-1 wiring

- 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.



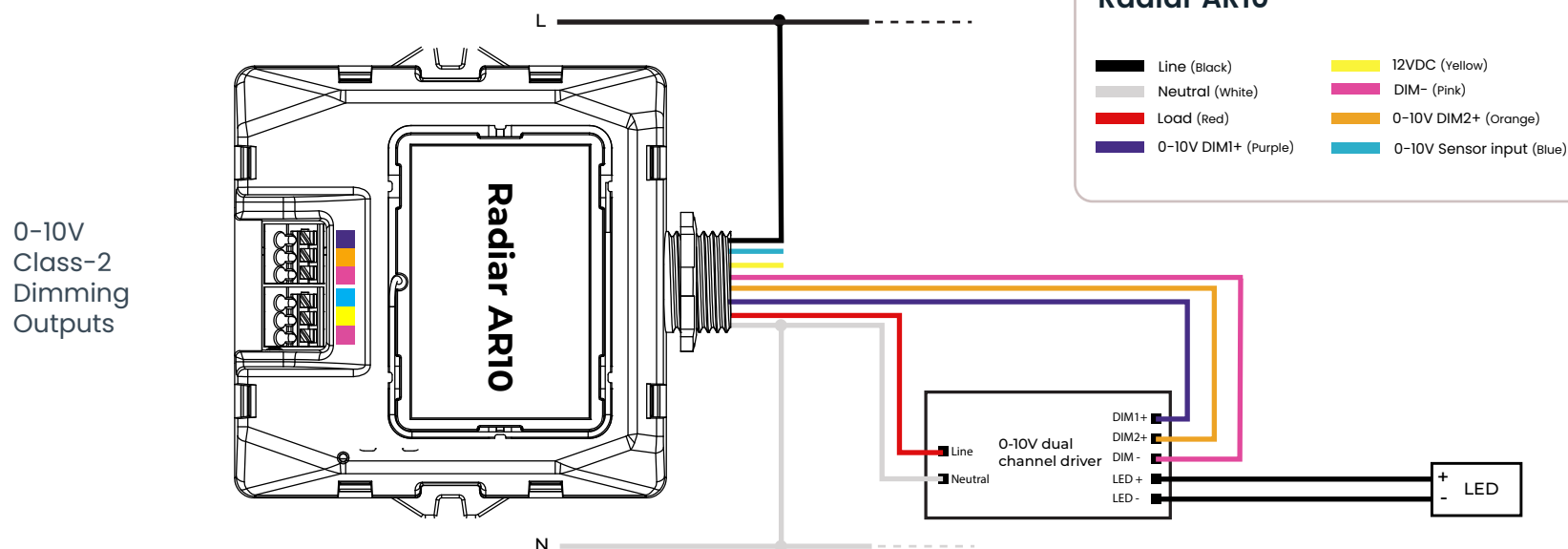
## Class-2 wiring

- 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

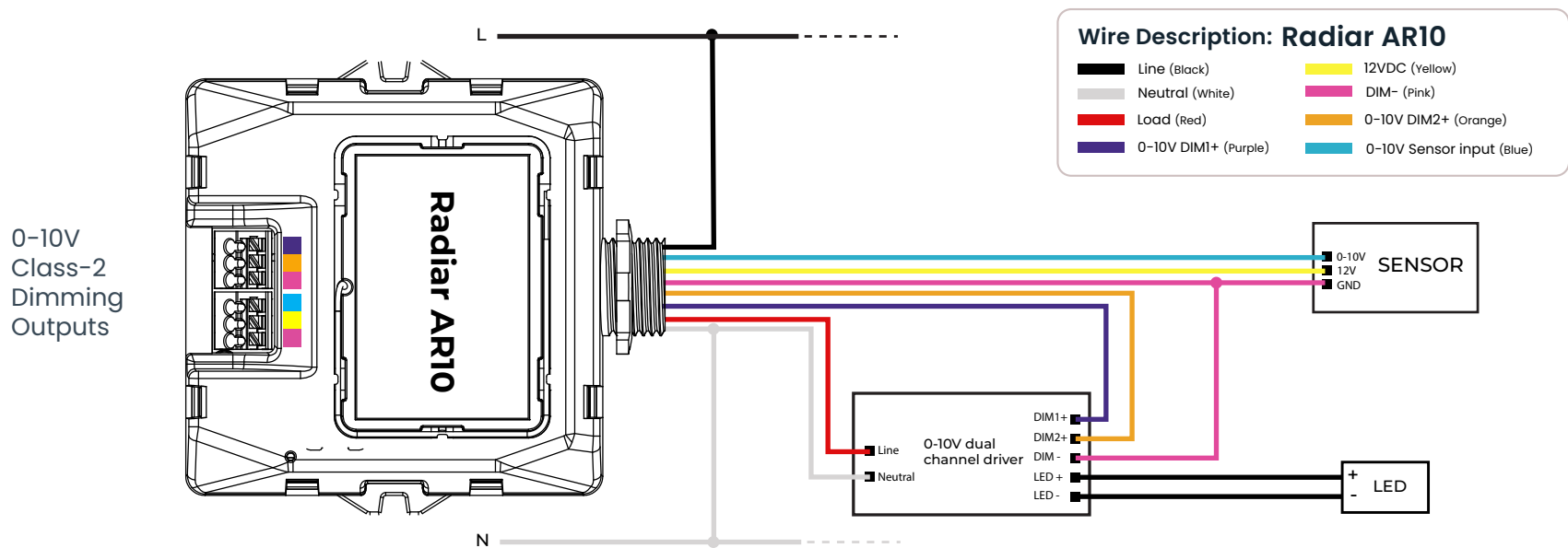


## Wiring Diagram

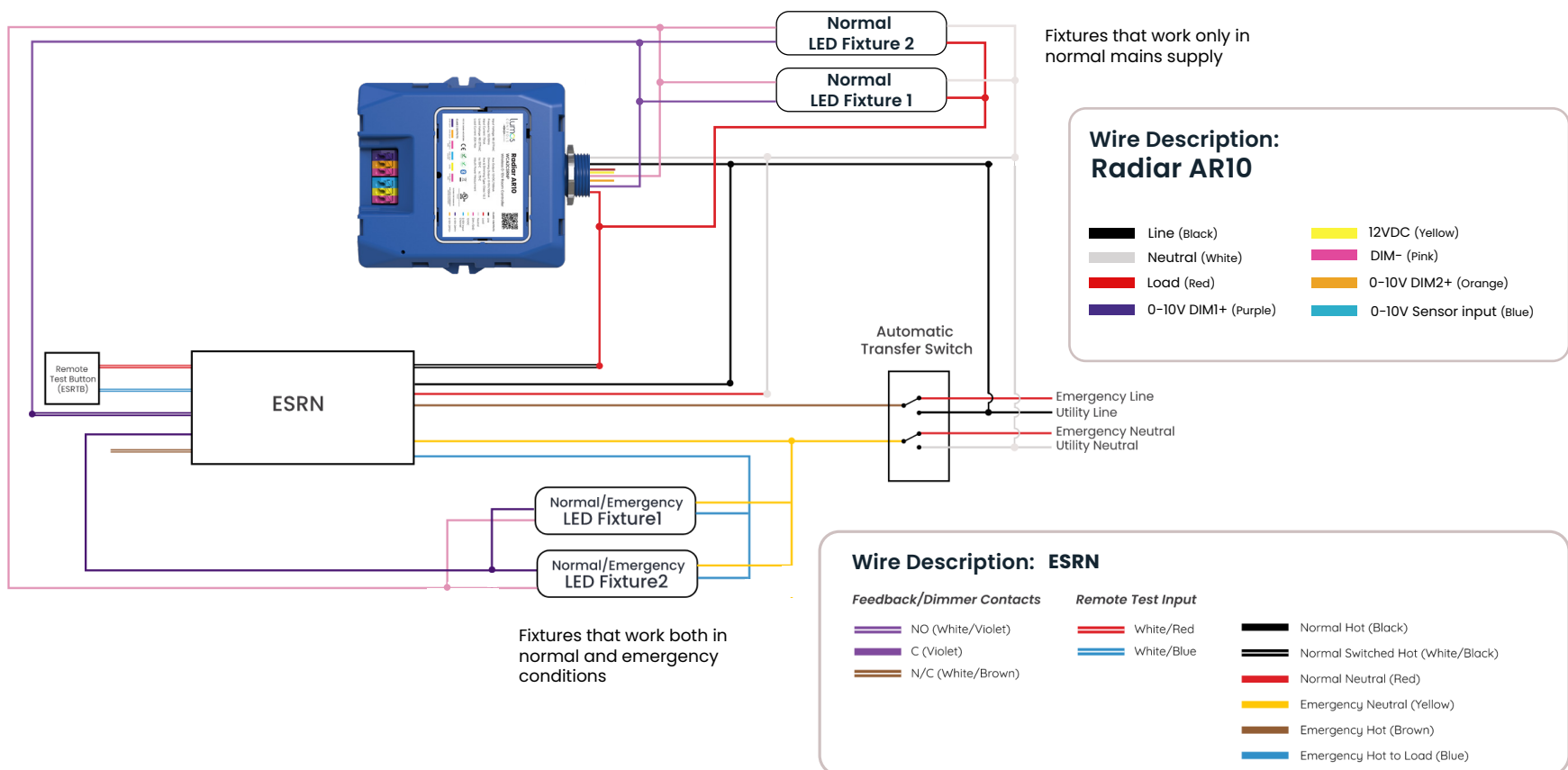
### 01. Configuring Radiar AR10 for dimming and tuning



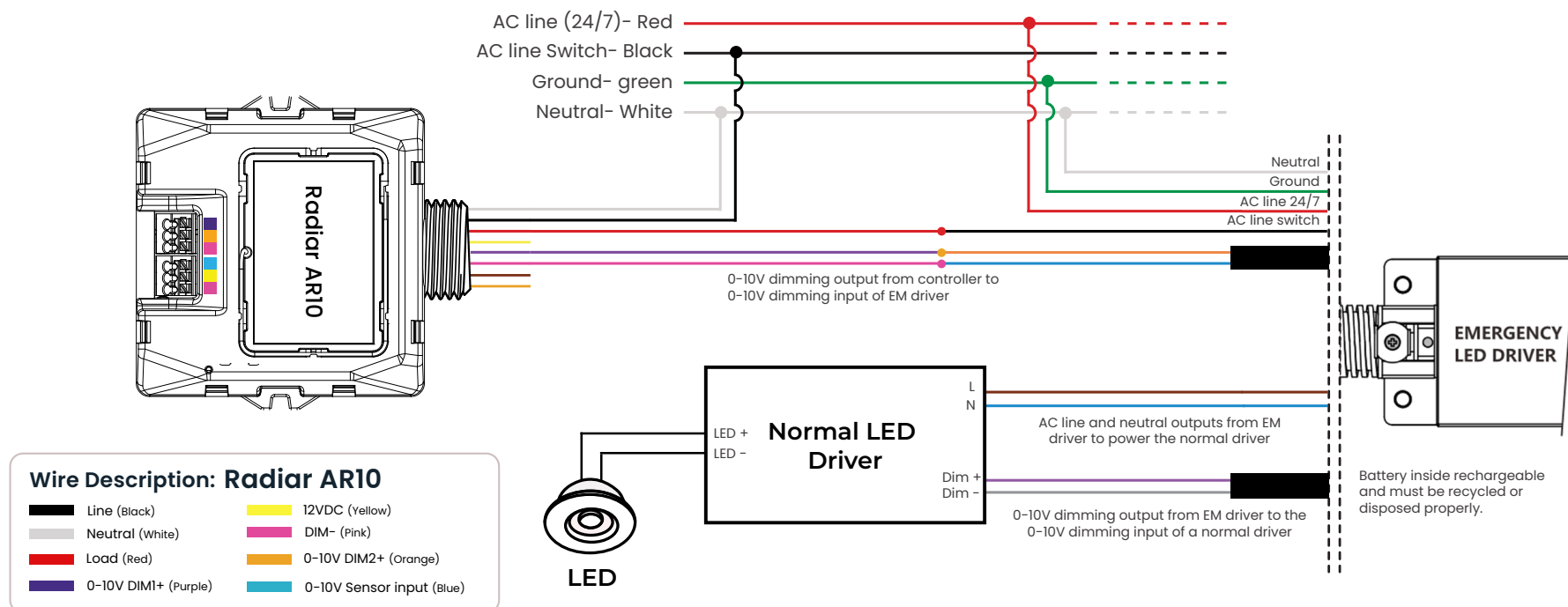
## 02. Configuring Radiar AR10 for dimming, tuning and an external sensor control.



## 03. Configuring Radiar AR10 for Emergency Lighting Control with ESRN(20Amp SPST)

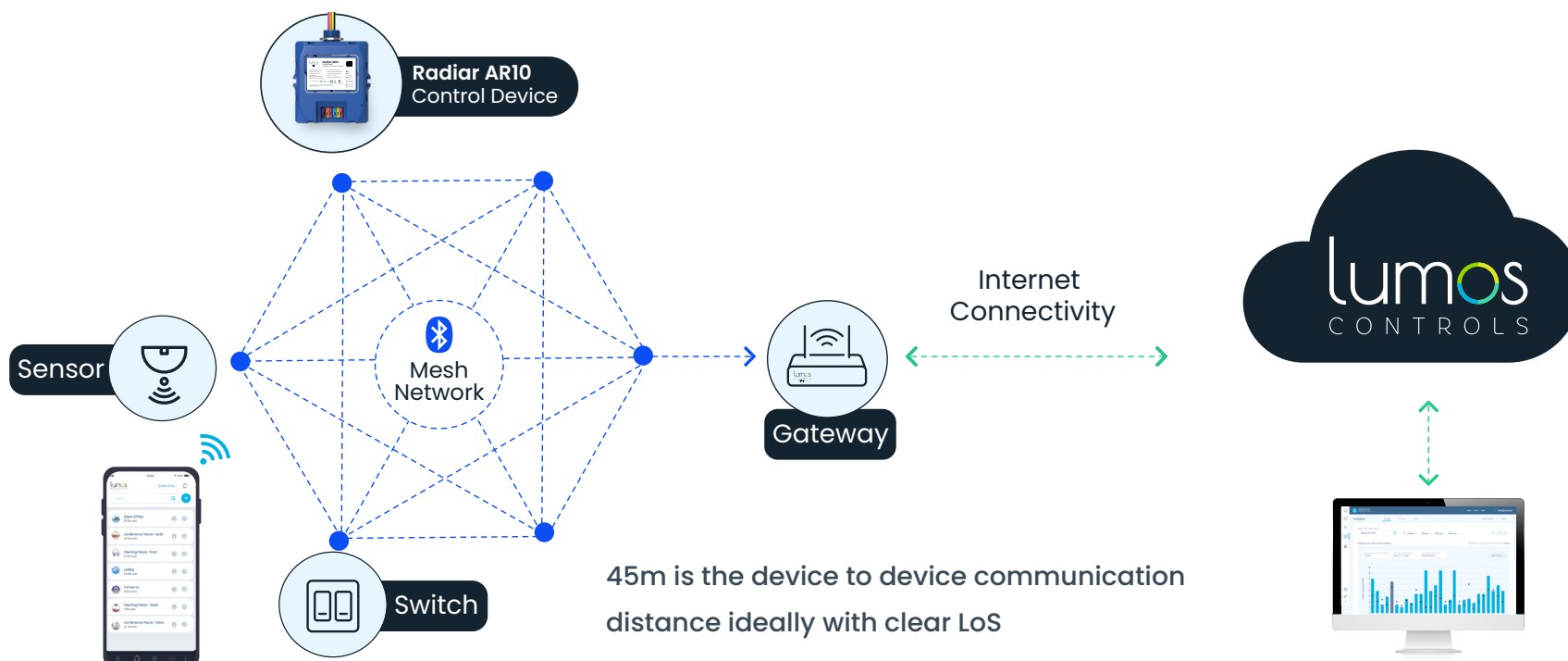


## 04. Wiring Radiar AR10 with a 0-10V battery backup Emergency driver



\*wire colors of drivers may vary based on the manufacturers

## Smart Ecosystem





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

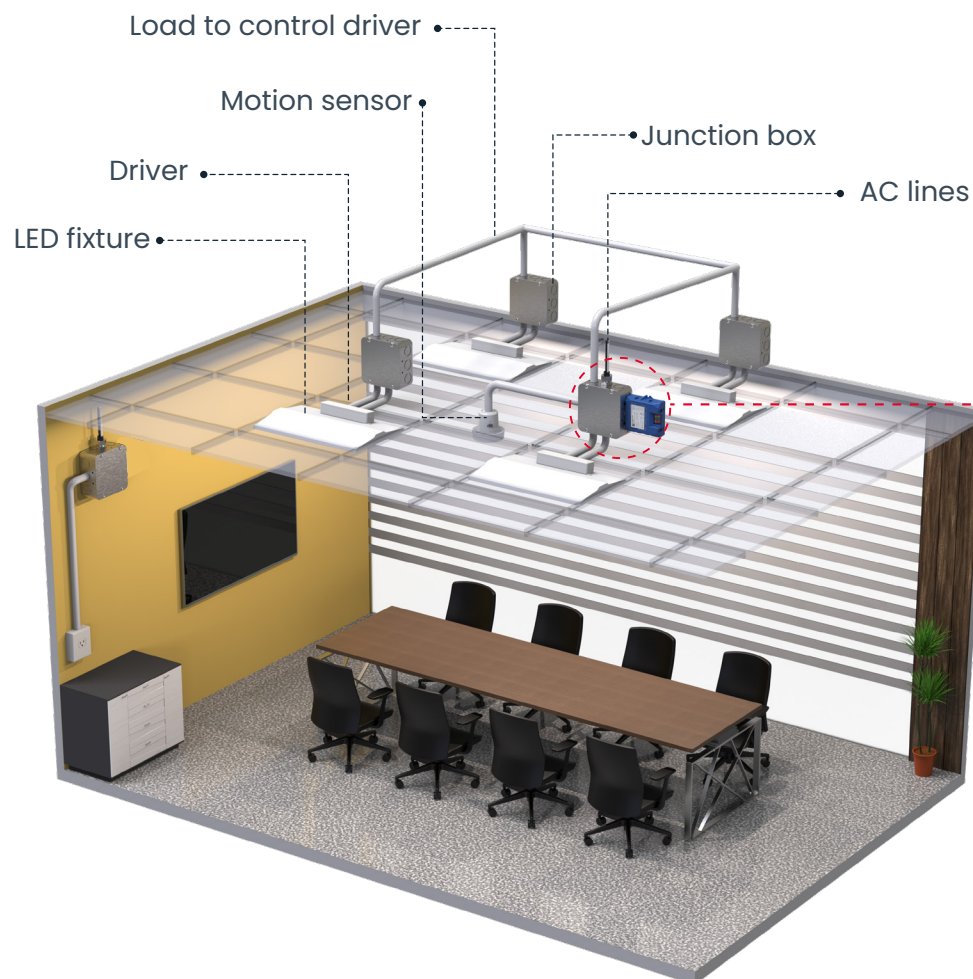
## Items included in the package box

- 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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