



# Radiar AR10

Radiar AR10 is a BLE5.2 controllable, dual-channel 0-10V room controller. The device is powered by 277VAC voltage, also has a 20A relay to use it as a room controller or as a plug-load controller. It comes with Class-1 and Class-2 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.



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## 1. Features

- Dual channel 0-10V independent output to control intensity and color temperature (CCT).
- Load control up to 20A @ 120/277VAC.
- Auxiliary 12V/100mA output to power the sensors.
- 0-10 VDC input channel to integrate with third party sensors.
- Class-1 and Class-2 dual channel 0-10V outputs to control the dimming and CCT.
- It acts as a Plug load controller to manage, control and monitor the plug loads efficiently.
- Instantaneous current and voltage measurement of connected load.
- 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.

## 2. Specifications

Electrical	Value	Remarks
Input Voltage	120 – 277 VAC	
Input Current	40 Ma @230	75 Ma @ 110v
Frequency	50 – 60 Hz	
Load Voltage	90-277 V	
Load Current	20A	
Max LOAD output wattage	5 KW	
Inrush current	4A	
Surge protection	4 kV	
Standby current	14 Ma @ 110v	12 Ma @ 230 V

0-10V Output	Value	Remarks
Number of channels	2	
Voltage range	0-10VDC	Tolerance: ±0.2V
Current	100mA	Source current per channel
Dimming Range	0-100%	1000 steps resolution
Dimming curve	linear (default) /logarithmic	

Sensor Input	Value	Remarks
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Voltage Range	0-10VDC Analog input	
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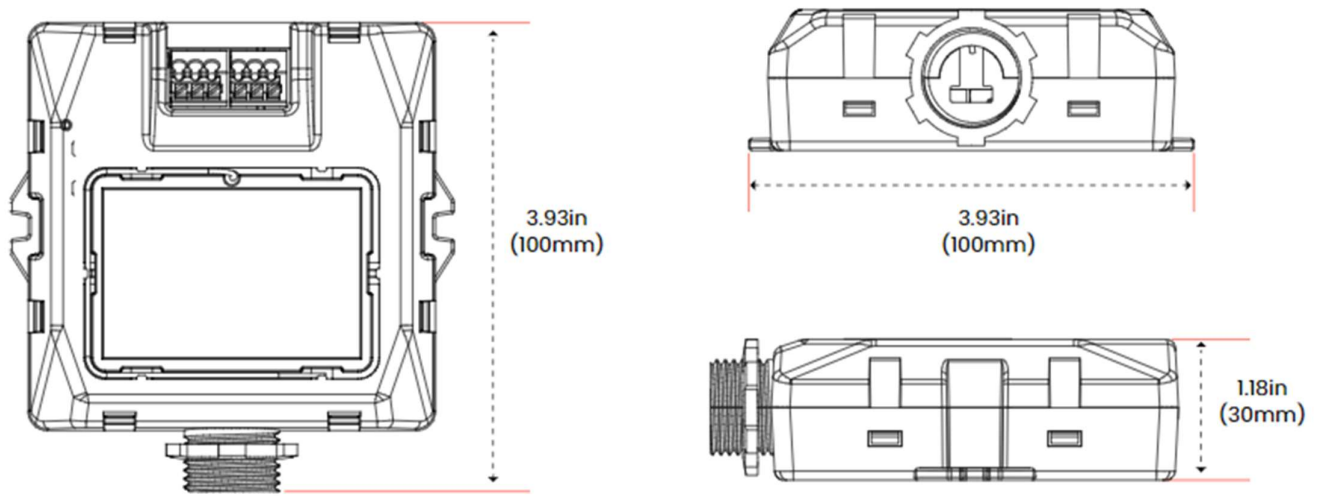
Auxiliary Output	Value	Remarks
Voltage	12VDC	
Current	100mA	

Bluetooth	Value	Remarks
Frequency	2402-2480 MHz	
Max output power	8 dBm	
Receive sensitivity	-95 dBm	
Connection distance (device to device)	45m (146 ft)	vary depending on the installation environment

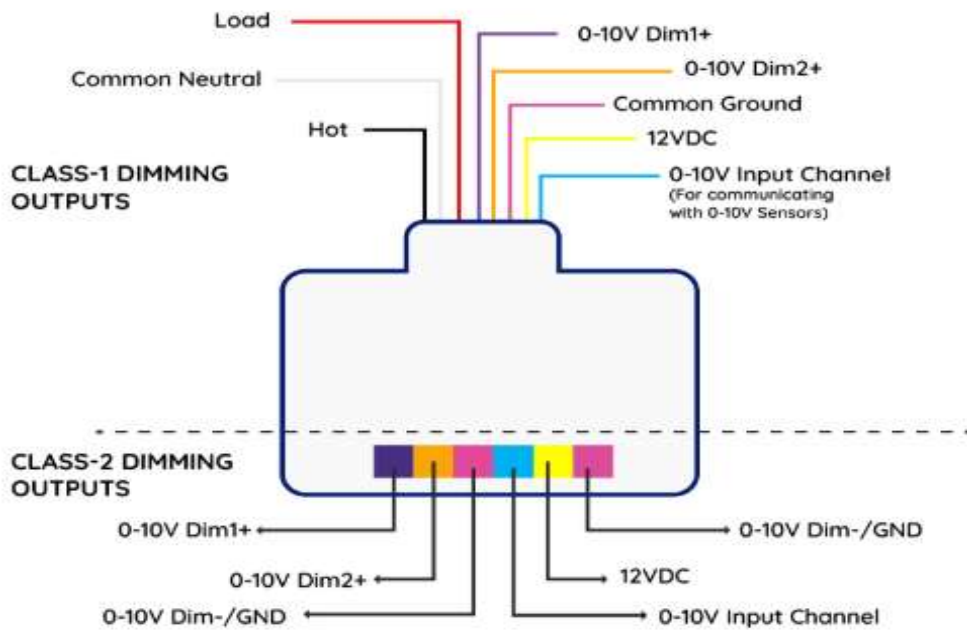
Environmental	Value	Remarks
Operating temperature (in °C, °F)	-20 – 50 °C	
Case temperature (in °C, °F)	70 °C	
Relative humidity (in °C, °F)	20 – 85 %	

Mechanical	Value	Remarks
Dimensions	109.5 x 96.5 x 28 mm	L x W x H
Dimensions	4.3 x 3.8 x 1.10 inch	L x W x H
Weight (in gm, oz)	160 gm (2.11 oz)	
Case material	ABS Plastic (Blue color)	
Flammability rating	UL 94 5VA	

### 3. Dimensions



### 4. Wire Description



**Class-1 outputs**

Pin	Name	Color	Guage	Rating	Description
1	Line	Black	12AWG (4.0mm <sup>2</sup> )	600V	120-277VAC
2	Common Neutral	White	12AWG (4.0mm <sup>2</sup> )	600V	120-277VAC
3	Load	Red	14AWG (2.5 mm <sup>2</sup> )	600V	120-277VAC
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	0-10VDIM-/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

**Class-2 Outputs**

Pin	Name	Push-in connector Color	Description
1	0-10V DIM1+	Purple	0-10VDC/100mA
2	0-10V DIM2+	Orange	0-10VDC/100mA
3	0-10VDIM-/GND	Pink	0-10VDC/GND
4	0-10VDC sensor input	Blue	0-10VDC/2mA
5	12VDC	Yellow	12VDC/100mA
6	0-10VDIM-/GND	Pink	0-10VDC/GND

## 5. Antenna Information

### 150mm wire antenna

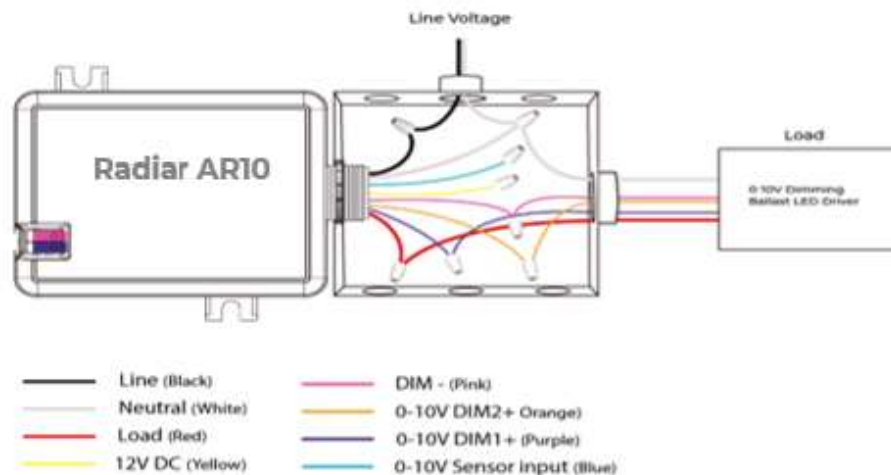


Antenna Properties	
Frequency range	2.4 GHz-2.5GHz
Impedance	50 $\Omega$ Nominal
VSWR	1.92:1 Max
Return loss	-10 dB Max
Gain(peak)	2 dBi
Cable loss	0.3 dBi Max
Polarization	Linear vertical

## 6. Wiring Types

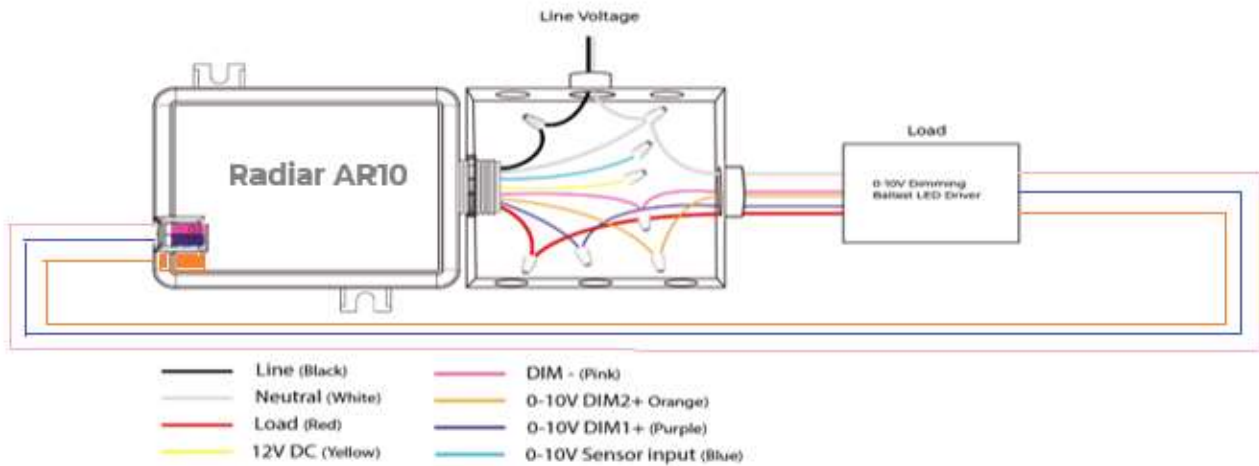
### Class-1 wiring

- In Class-1 wiring, the 0-10V low voltage control wires run along with the line voltage wires in a same conduit. (See the image below)
- 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.



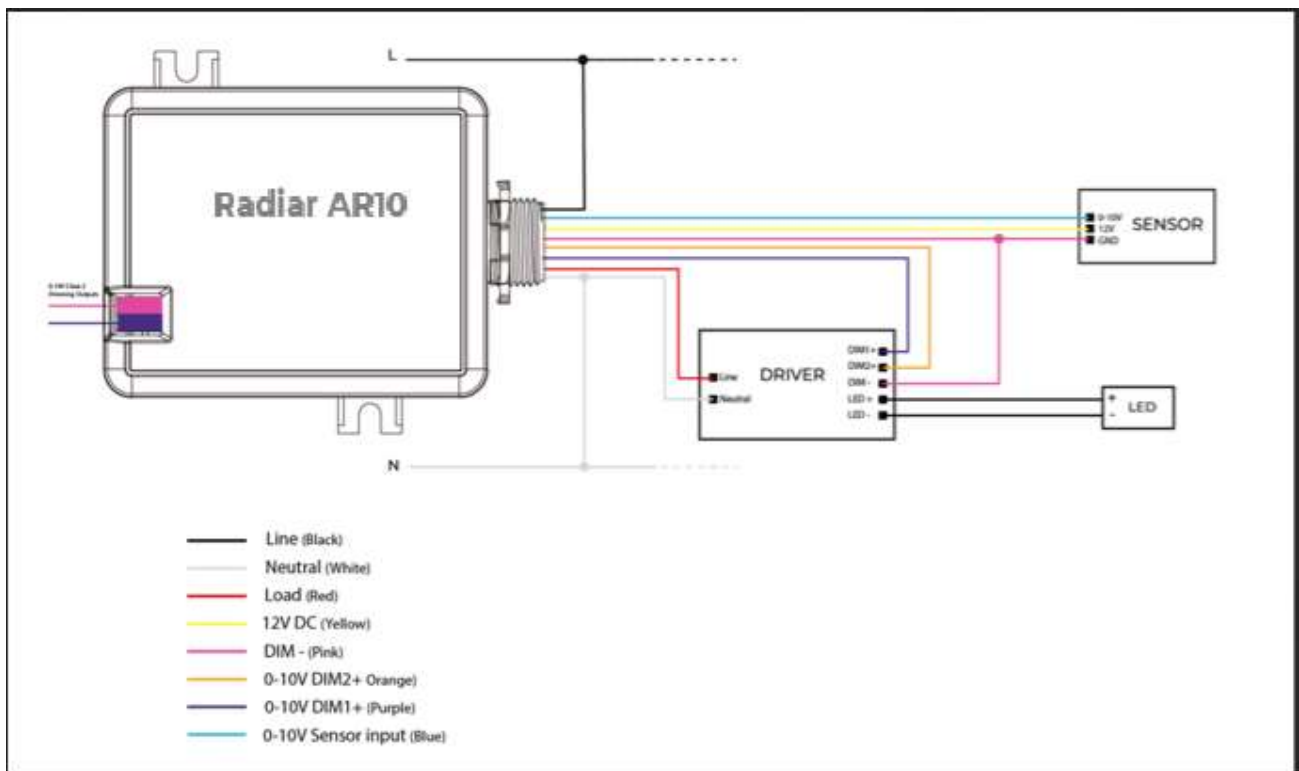
**Class-2 wiring**

- In Class-2 wiring, the 0-10V low voltage wires run separately in another conduit (See the image below)
- 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.



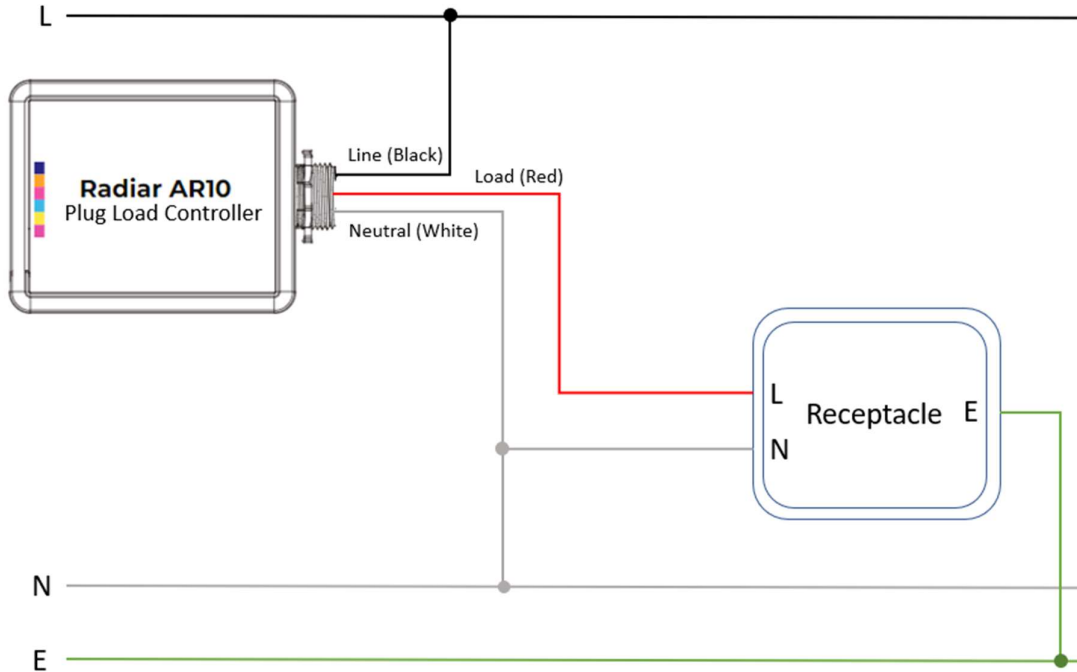
**7. Wiring Diagram**

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





2. Configuring Radiar AR10 for Plug Load Control



8. Items included in the package box

- Radiar AR10
- User Manual
- Antenna

9. Ordering Information

Product Code	Product Description	Communication	Voltage Rating	Sensor Input	Output Channel	Aux Power	Relay Control	Inbuilt Power Measurement
<b>WCA2CSRN</b>	Wireless 0-10V dual channel dimming AC powered room controller without Power measurement.	BLE5.2	120-277V AC	0-10 VDC	0-10V 2 Channels	12VDC	20A	No
<b>WCA2CSRN P</b>	Wireless 0-10V dual channel dimming AC powered room controller Measurement.	BLE5.2	120-277V AC	0-10 VDC	0-10V 2 Channels	12VDC	20A	Yes



CONNECTING THINGS TO LIFE

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### FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device

must accept any interference received, including interference that may cause undesired operation.

### RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.