

ATX LED

100% DC low voltage

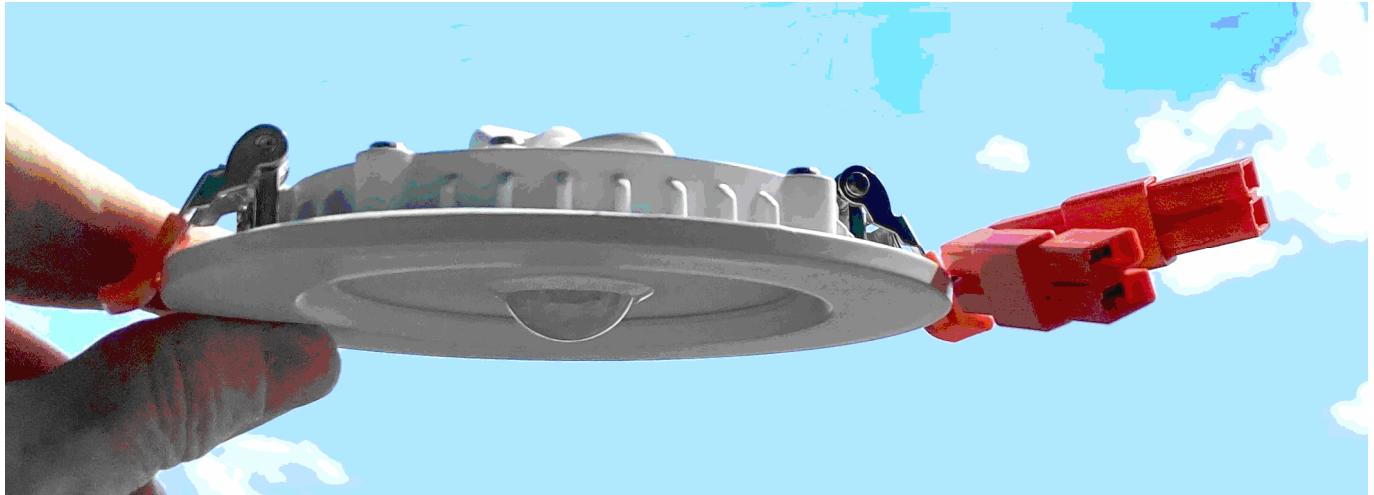
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P023R6 Motion LED Fixture
Low Voltage dimmable
Ambient Light feature
DR2 fw 66 or later needed

P023R6 series, CC

ETL 5005242 (UL 1598 std)

Bright LEDs, Cool Operation



Product Description - low profile Motion LED fixture

Technical specifications

	CC models (Current controlled dimming)	CV Models (Voltage dimming)
Motion Detection	PIR – fixed sensitivity	PIR – fixed sensitivity
Ambient Light	Will not turn on if there is enough ambient light	Will not turn on if there is enough ambient light
Wattage	6 watts internal, 24 watts external	6 Watts internal, 42 watts external
Dimming Range	0 to 100%, flicker free	5% to 100%, flicker free
Lumens / CRI	600 lumen / CRI 90	540 lumen / CRI 90
Color Temperature	6 fixed options available plus tunable white	3 Fixed options
Operating Current / Voltage	7.5 to 9.0 volts @ 660 mA use current limited driver	46-52v @ 125 mA internal limit use voltage limited driver
Recommended wiring	1 series mode controls up to 3 non-motion fixtures in fixed or Tunable	1 parallel model connects to up to 7 non-motion fixtures
Wall Switch type	AL-WS-DR2 or AL-WS-DR1	simple On/Off switch
Operating Temperature	Ceiling mount, -20 to 50 Deg C	Ceiling mount, -20 to 50 Deg C
IP Rating	Suitable for Damp environments	Suitable for Damp environments
IC Rated	Yes, with our without the AL-CBOX4	Yes, with our without the AL-CBOX4
LM-80 tested	10,000 hours	10,000 hours
LED type	2835 long life	2835 long life

Ambient Light Sensor

The fixture will not turn on if there is “ample” light already in the room. For testing purposes, please use a darkened room.

Closet Rated

Suitable for use within Closet storage spaces when installed per NEC requirements. See <https://atxled.com/Closets> for more info.

Motion Sensing with On/Off switches

Use the 48v model with a simple On/Off switch and a 48v to 54v power supply. No driver is required with the 48v models. Up to 1 amp of load can be connected.

Motion Sensing with smart switches

With an AL-WS-DR2, the motion can be detected and will signal motion to the DALI bus with fw 66 or later. The attached LEDs will be on with motion and automatically go off after a delay. If normal DALI address is turn OFF – motion is not detected.

When the N-Way mode is set to PIR, and the driver mode is not Split – the following changes occur to the N-Way operation: The N-Way input is disconnected from the main On/Off momentary function. If a 2nd DALI address is assigned, On/Off/Motion/Dimming packets will be sent via the 2nd address.

The main switch will cause DALI On/Off/Dimming packet to be sent on the normal address in all cases.

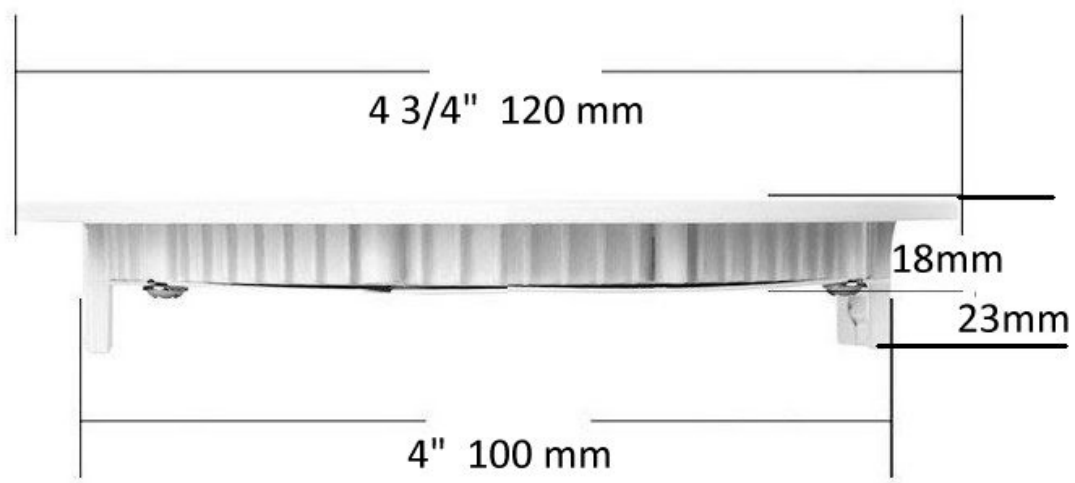
PIR mode enables these functions

- Driver mode – ALL Fixed:
With the AL-WS-DR2 in ALL Fixed mode, both outputs with up to 10 lights will be controlled by the main switch, by motion, or by the DALI normal address. The Motion sensing LED is only connected to cool. The DALI bus 2nd address will be updated with Motion events, or by pressing the N-Way button – see the list of 2nd address functions in the AL-WS-DR2 data sheet. The LEDs attached to Warm can be ON when there is no motion – set the System Fail level to be your 24/7 brightness requirement.
- Driver mode – Split:
With the AL-WS-DR2 in Split mode, the Cool LED output is controlled by motion, the main switch, or the DALI normal AL-WS-DR2 short address. The DALI Motion On/Off packets will be sent using command 271, followed by device DALI address + 64 (off) or +128 (on). The Warm LED output will be controlled by the N-Way switch or 2nd DALI address without linkage to motion.
- CCT mode
With the AL-WS-DR2 in CCT mode, the LEDs will be controlled by the main switch, by motion, or by the DALI normal address. When no motion is detected, the AL-WS-DR2 maintains 50% of LED Vf on Cool, this powers the sensor, but not the LED, and Warm open circuit with a low current. Upon motion, the DR2 senses a voltage drop on Warm from the open circuit voltage, it then turns current up on both Warm and Cool to full, then off again once the load times out. The LEDs attached to Cool can be ON when there is no motion – set the System Fail level to be your 24/7 brightness requirement.
- Driver mode – Fan+Light
With the AL-WS-DR2 is in Fan+Light mode, a fan was detected on the Warm output. The Cool LED output is motion controlled, main switch controlled, and DALI controlled using the DR2 normal address. The Fan is connected on the Warm output and is in Follow mode – fan follows the Motion light, or the N-Way switch. Requires firmware update

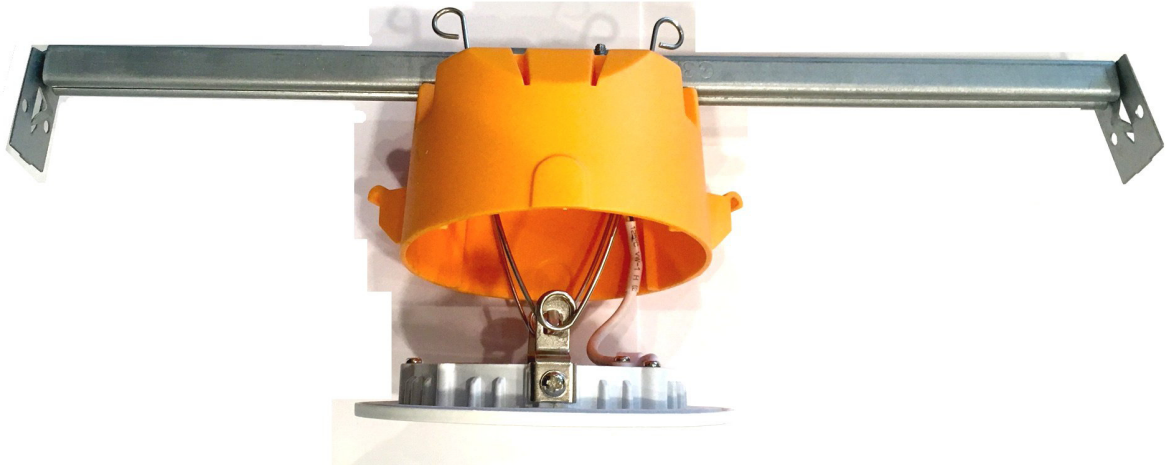
Direct Sheetrock / Wood mounting option



Mounting Option – direct to sheetrock



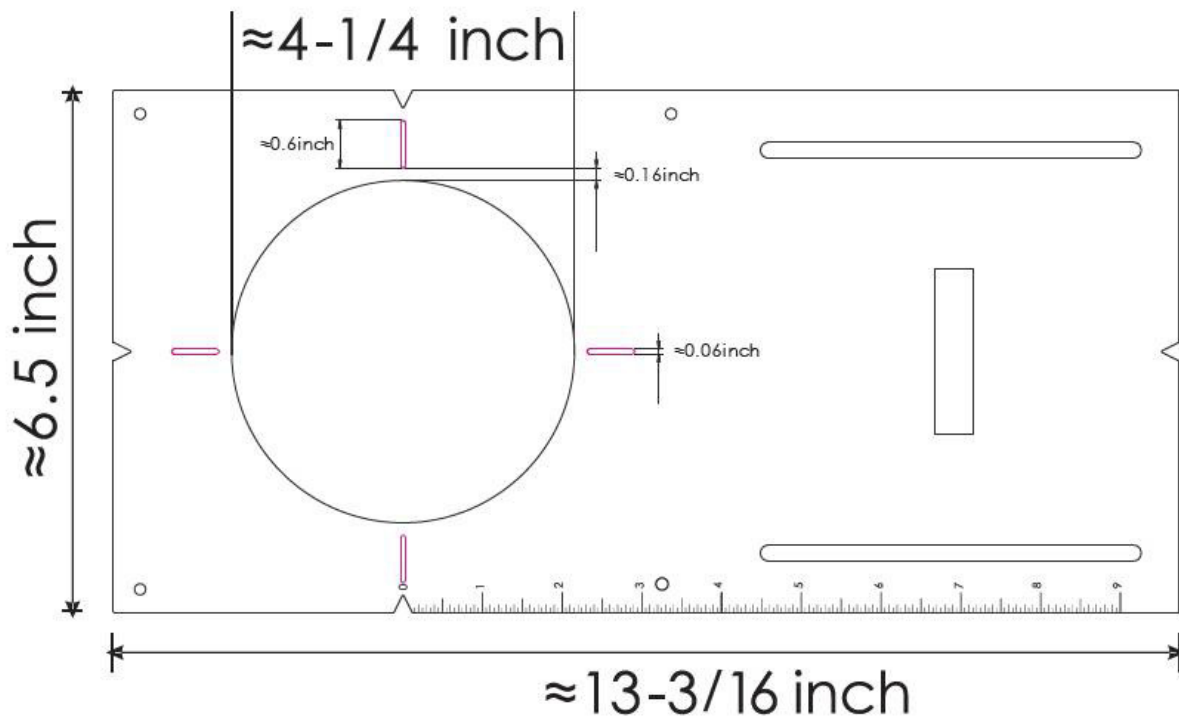
AL-CBOX4 ceiling box mount Option



AL-CBOX4 mounting hanger bar

16 to 24 inch joist spacing
Supports up to 20 lbs
Flat or vertical truss attachment
See [AL-CBOX4.pdf](#)

Metal Plate mount Option



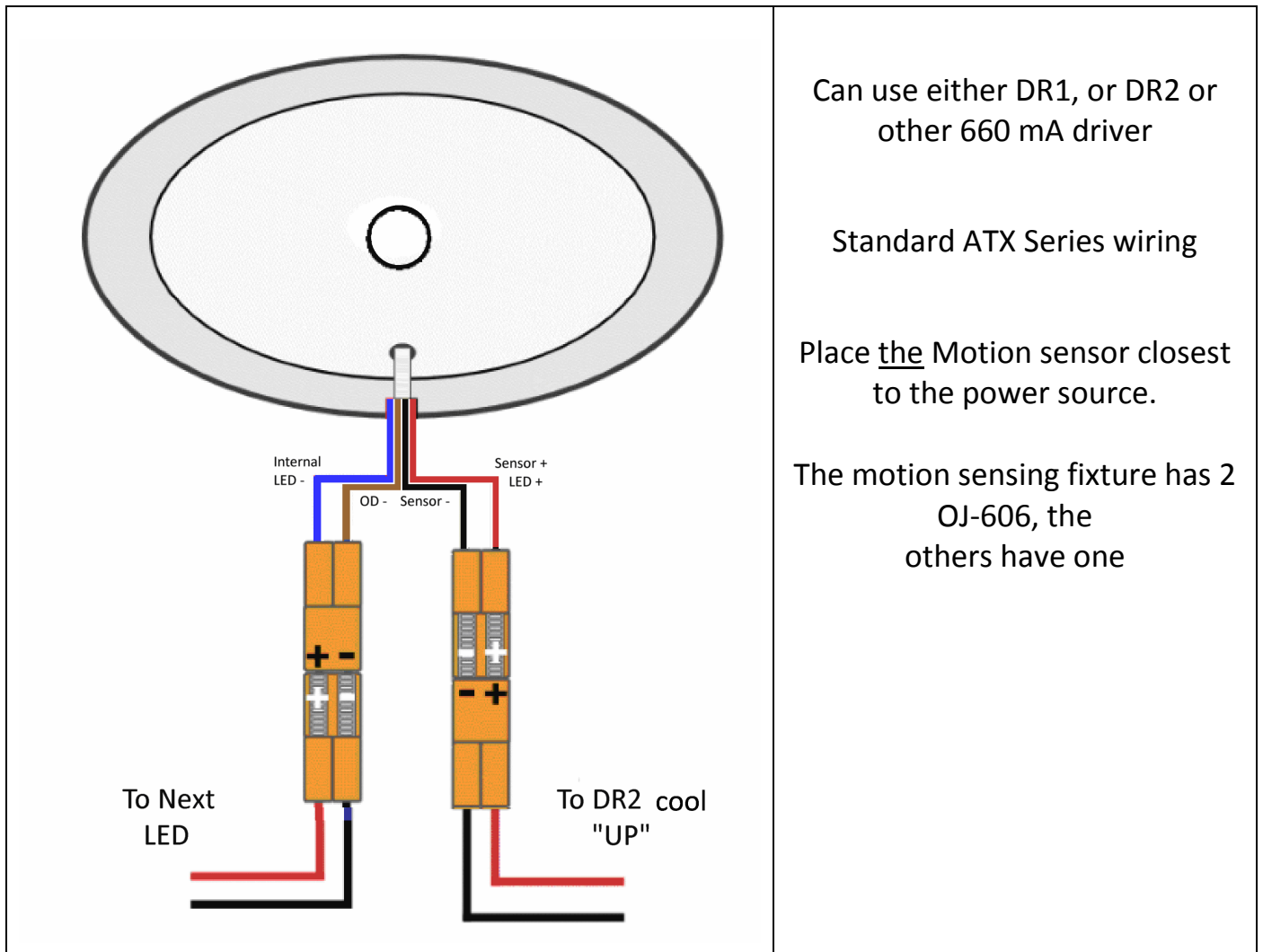
Color Temperature options

Available in 6 different color temperatures, these fixtures can be operated as a fixed color, or tunable white fixture. Any 660 mA current source can be used. Up to 5 fixtures can be wired in series to share one driver. That driver can be located up to 150 ft from the LEDs – since constant current eliminates the concerns about voltage drop. This 6 watt device can be installed as either tunable white or fixed color. Connecting both inputs in parallel will generate the 3850K color. .

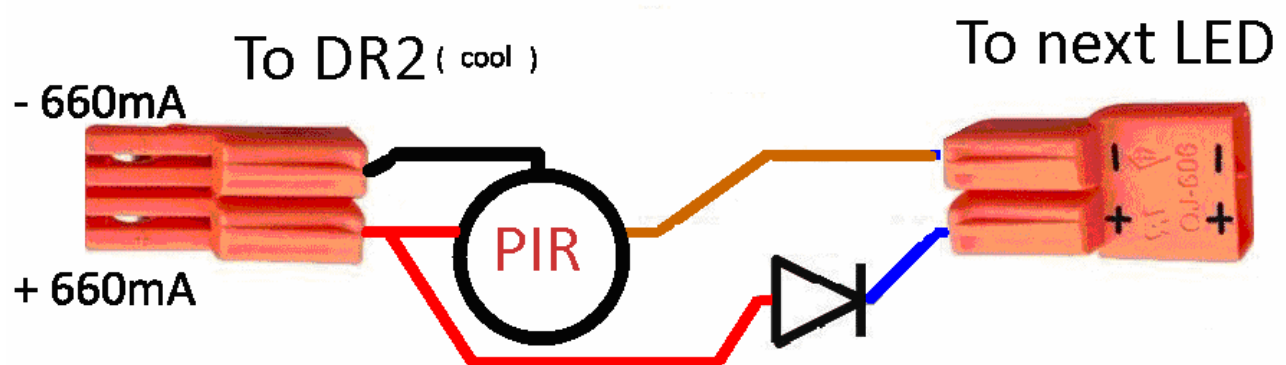
Model	2700	3000	3500	3850	4000	5000
CCT	X -----> X					
Fixed	X ²	*	X	X ²	*	

Stock, * = on request, X² = wiring option of CCT

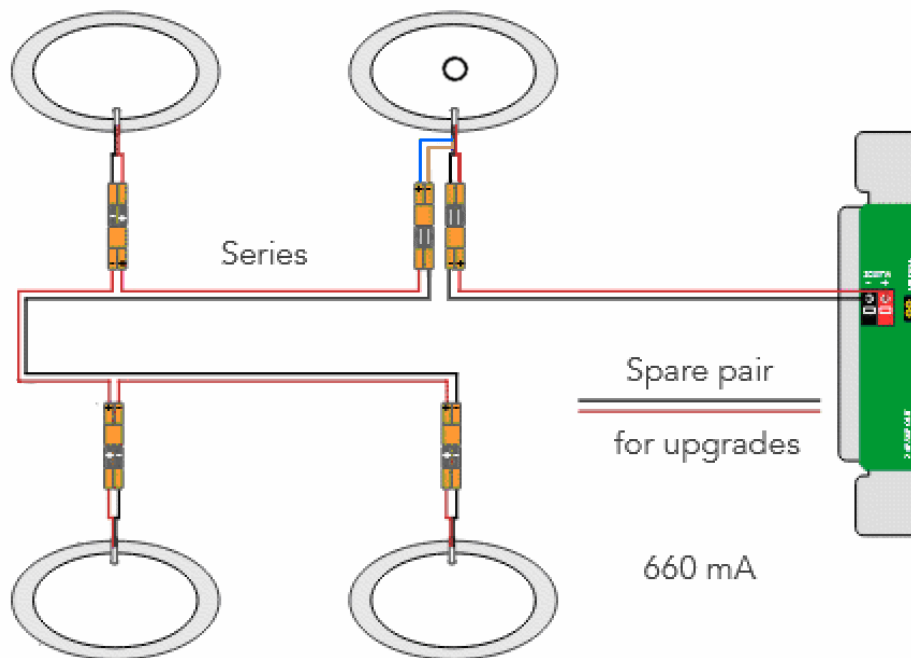
Fixed Color - Wiring example 660mA



660mA Internal Connections



Fixed Color - Multi LED Wiring example 660mA (p2)

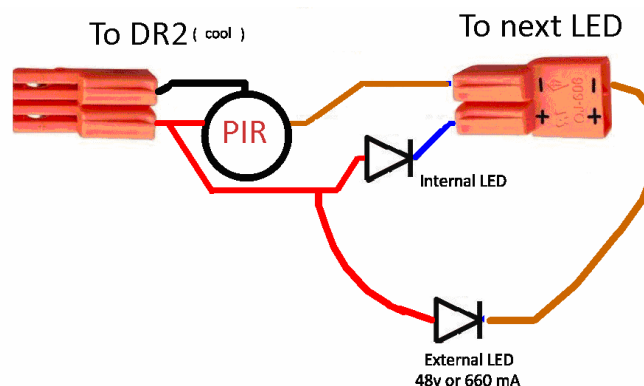


The AL-WS-DR2, keeps cool power on at all times at under 30 mA, it detects voltage drop on cool, and goes to full power until timeout is detected by Vout increasing to max again.

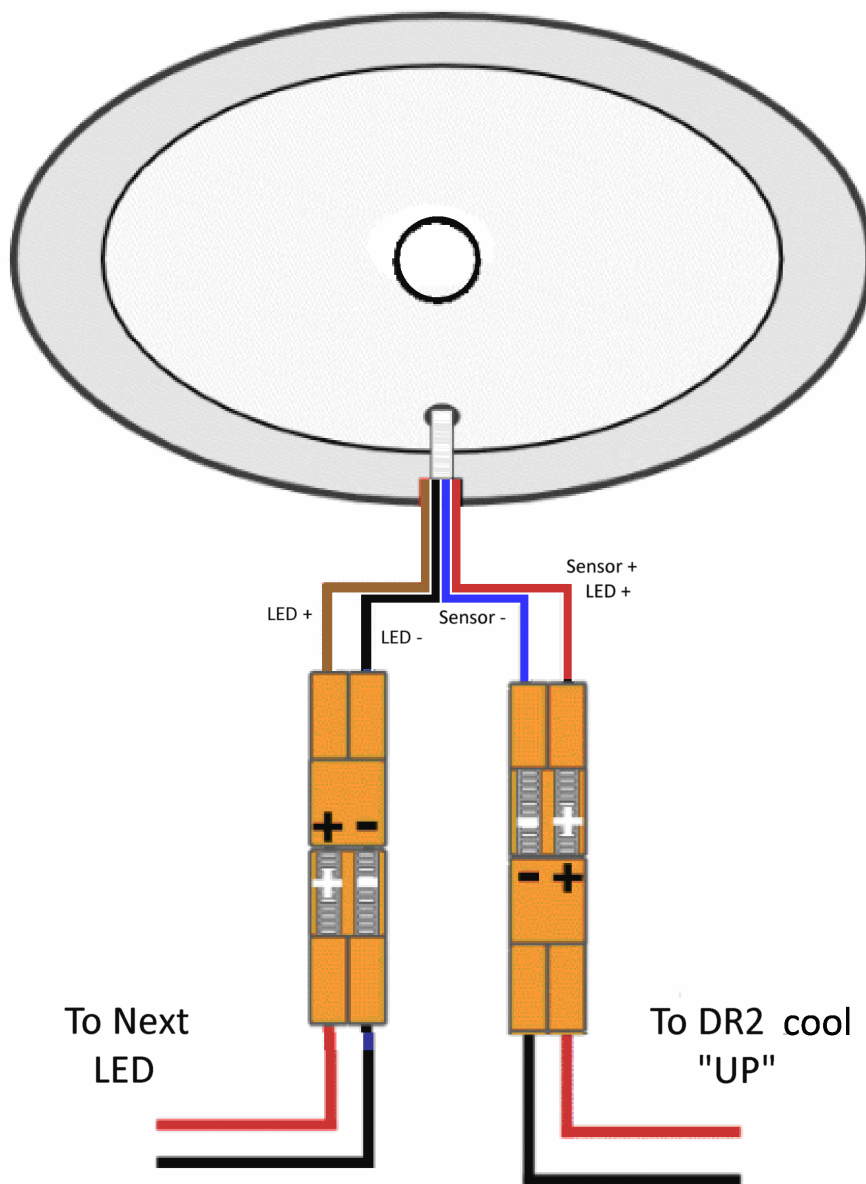
See page 3 for more details.

Use without the internal 660mA LED

To use the P023R6-M-660mA to E26 or DL-120 or other loads, and disable the internal LED, connect as shown, this is also used for DL-120 in CCT mode – see page



Fixed Color - Wiring example 48v parallel



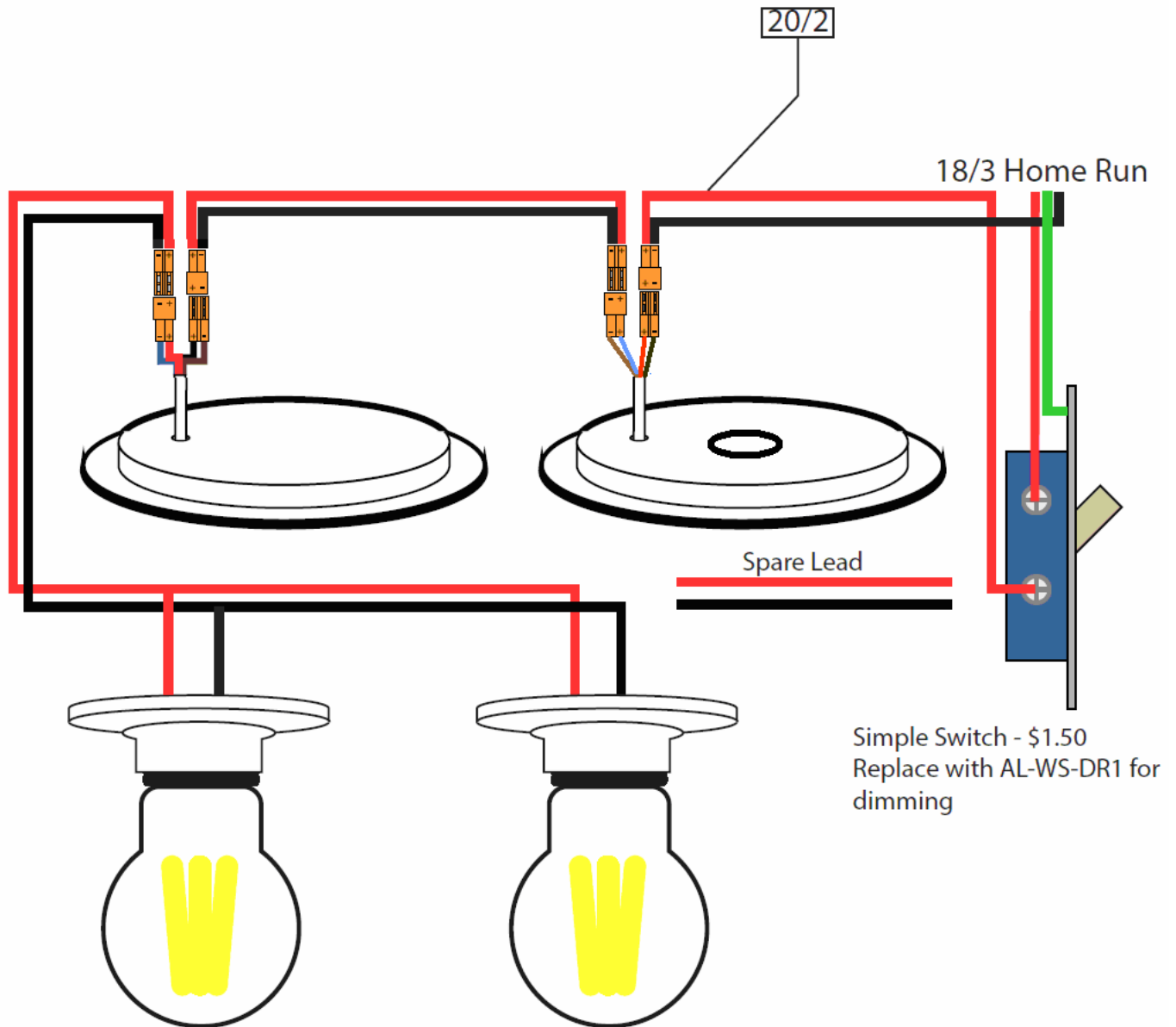
Can use either
DR1, DR2 or simple
On/Off switch

Simple parallel
wiring

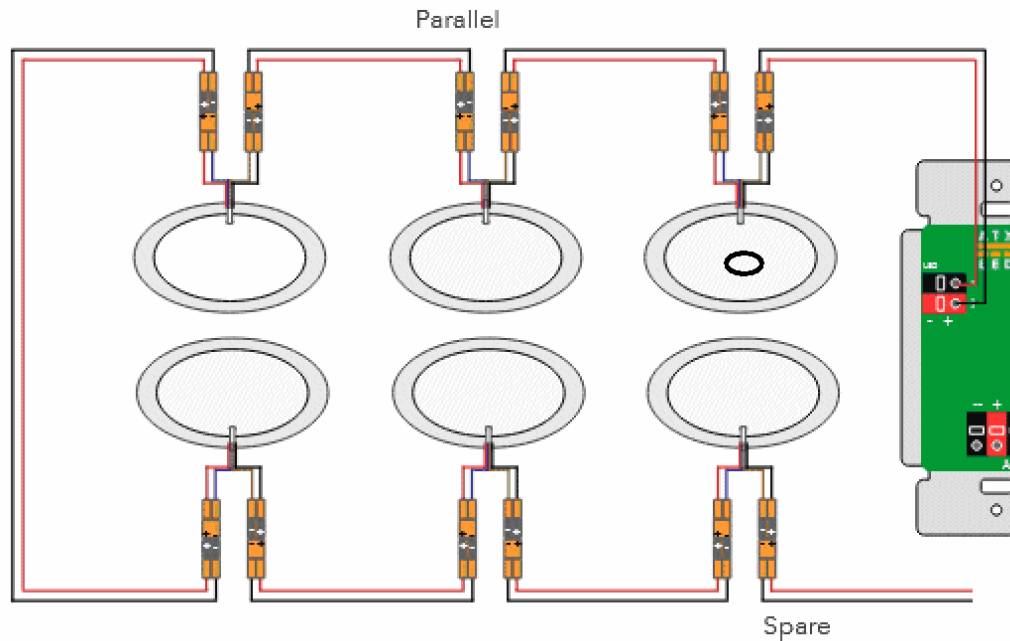
Place the Motion
sensor closest to
the power source.

Mix E26 and
Downlights

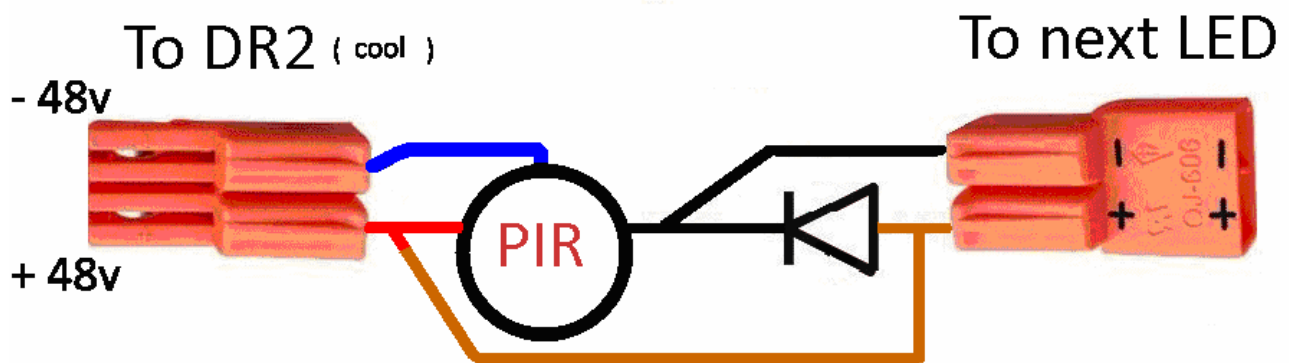
Fixed Color - Wiring example 48v parallel (p2)



Fixed Color - Wiring example 48v parallel (p3)



48v Internal Connections



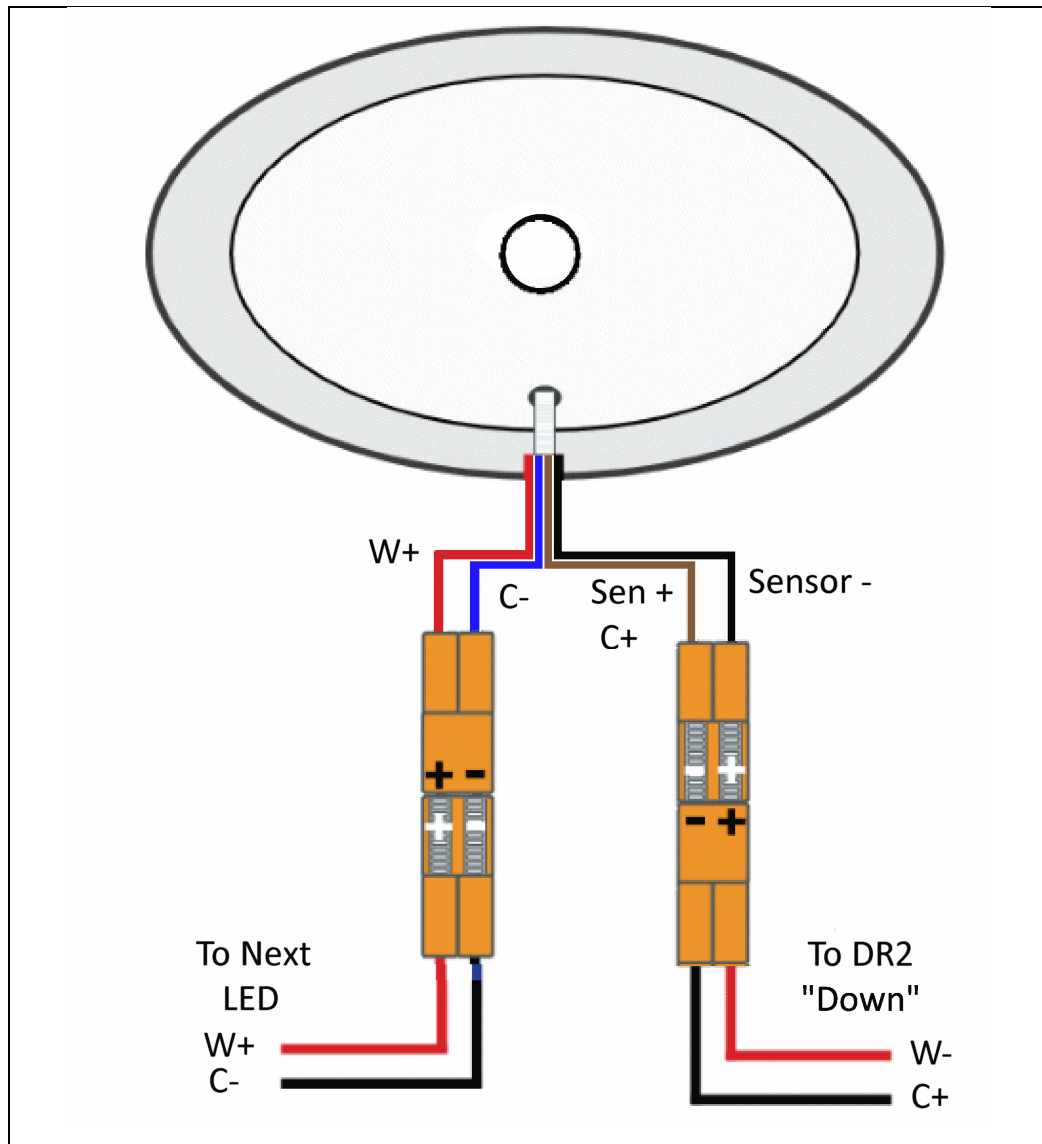
A simple on/off switch, DR1 or DR2 keeps power on at all times.

The AL-WS-DR2 limits the cool current to under 30 mA, detects voltage drop on cool, and goes to full power on both outputs until timeout is detected.

See page 3 for more details

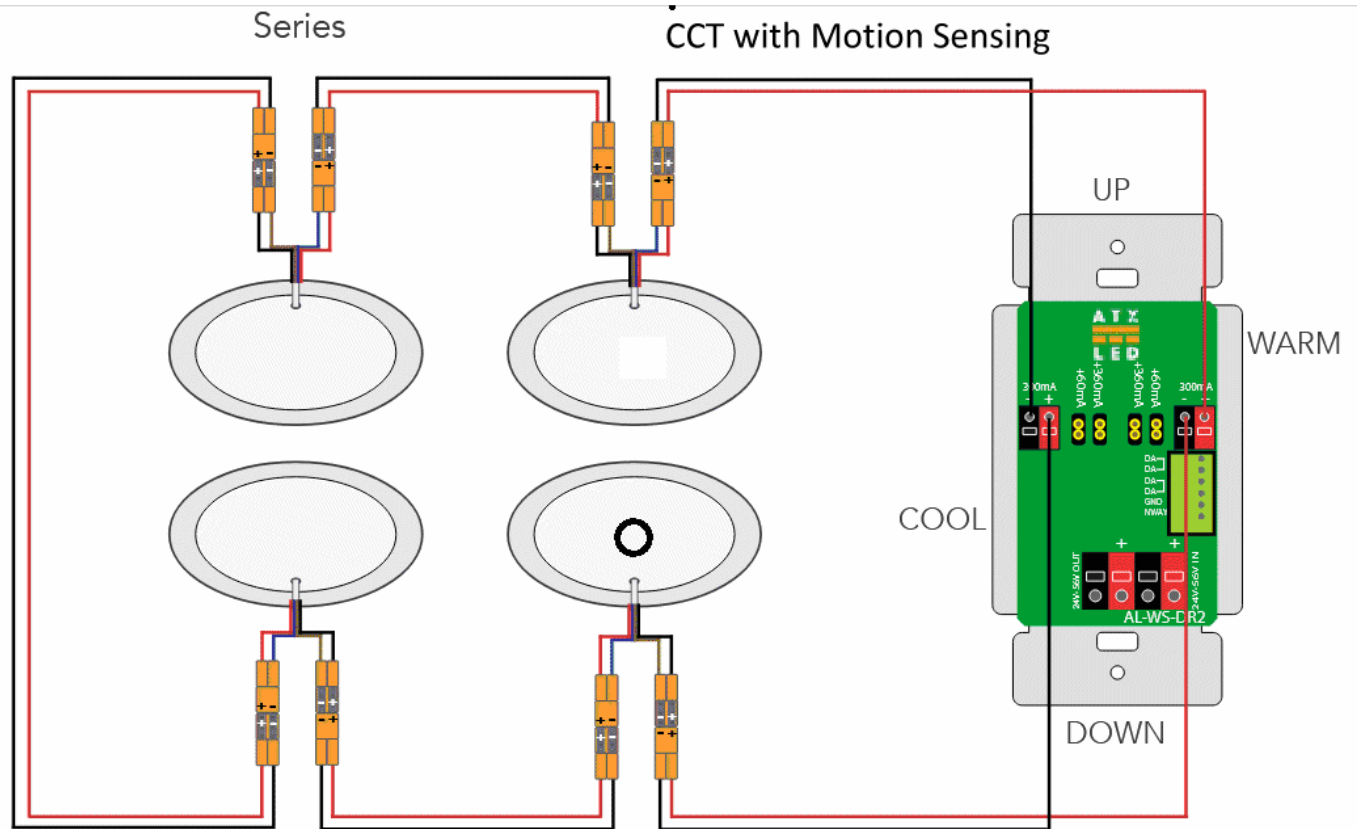
Tunable White (CCT) Wiring

Tunable White series LED wiring is implemented with just one pair of wire
OJ-606 type connector AWG 18 or 20 2 pin

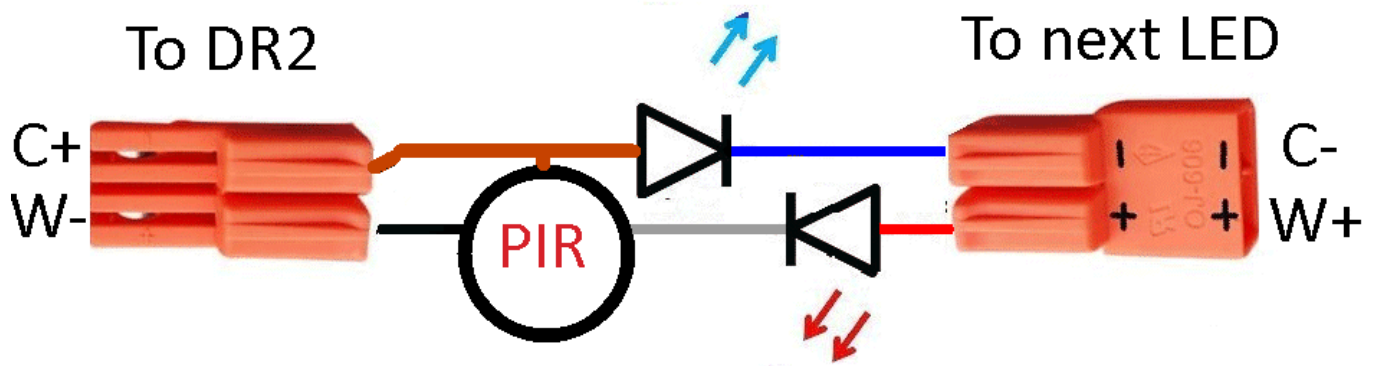


Tunable White series LED wiring is implemented with just one pair of wire
OJ-606 type connector AWG 18 or 20 2 pin

Tunable White (CCT) Wiring example (p2)



Tunable White (CCT) Internal Connections

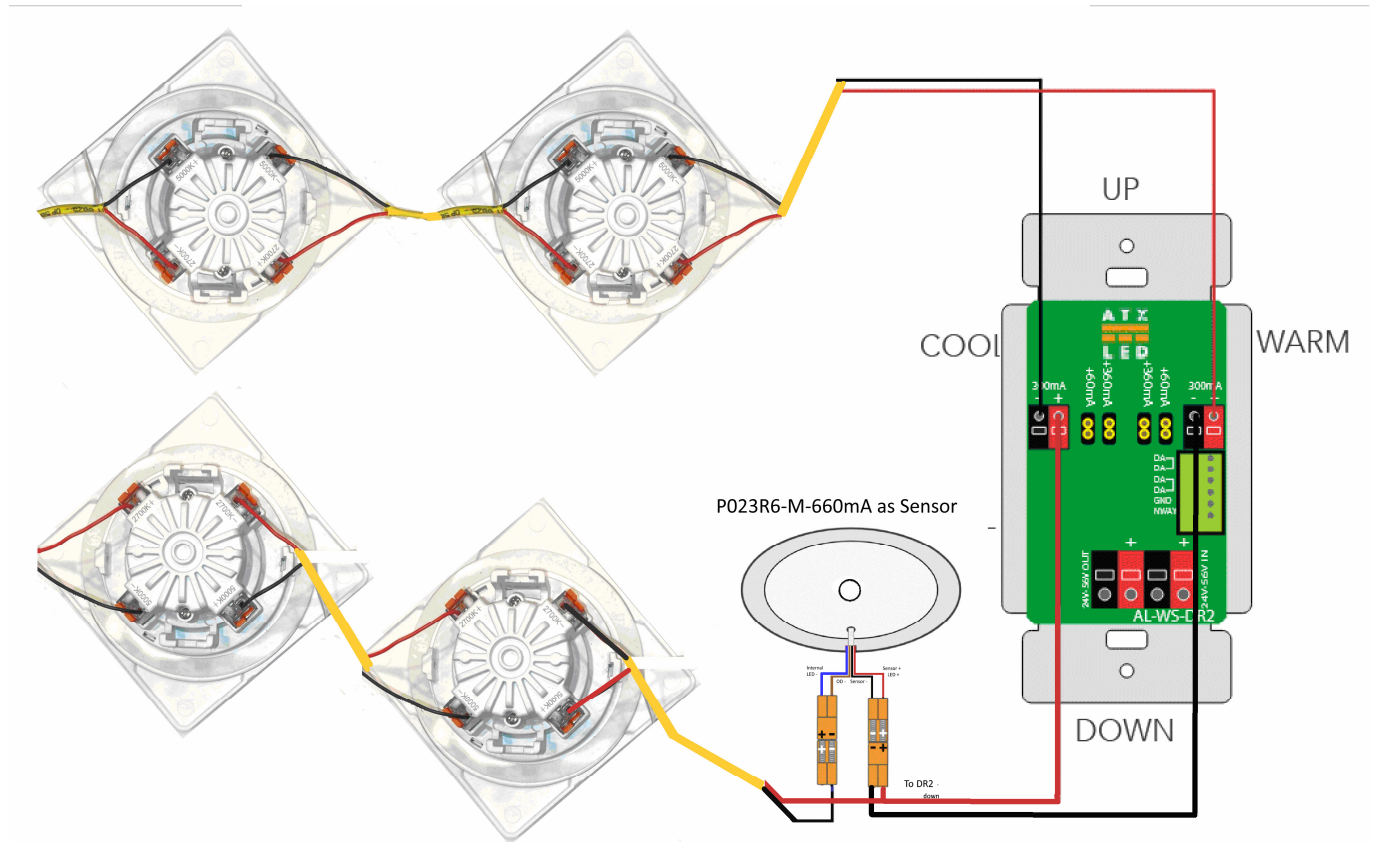


The AL-WS-DR2 maintains 50% of LED V_f on Cool, this powers the sensor. It also maintains desired current on Warm +, senses a voltage drop on Warm + from open to LED V_f as a motion action. It then turns current up on Cool to full. When $V_{out} > V_{fmax}$, end of timeout is detected and Cool drops to V_f .

Tunable White (CCT) Wiring example with DL-120

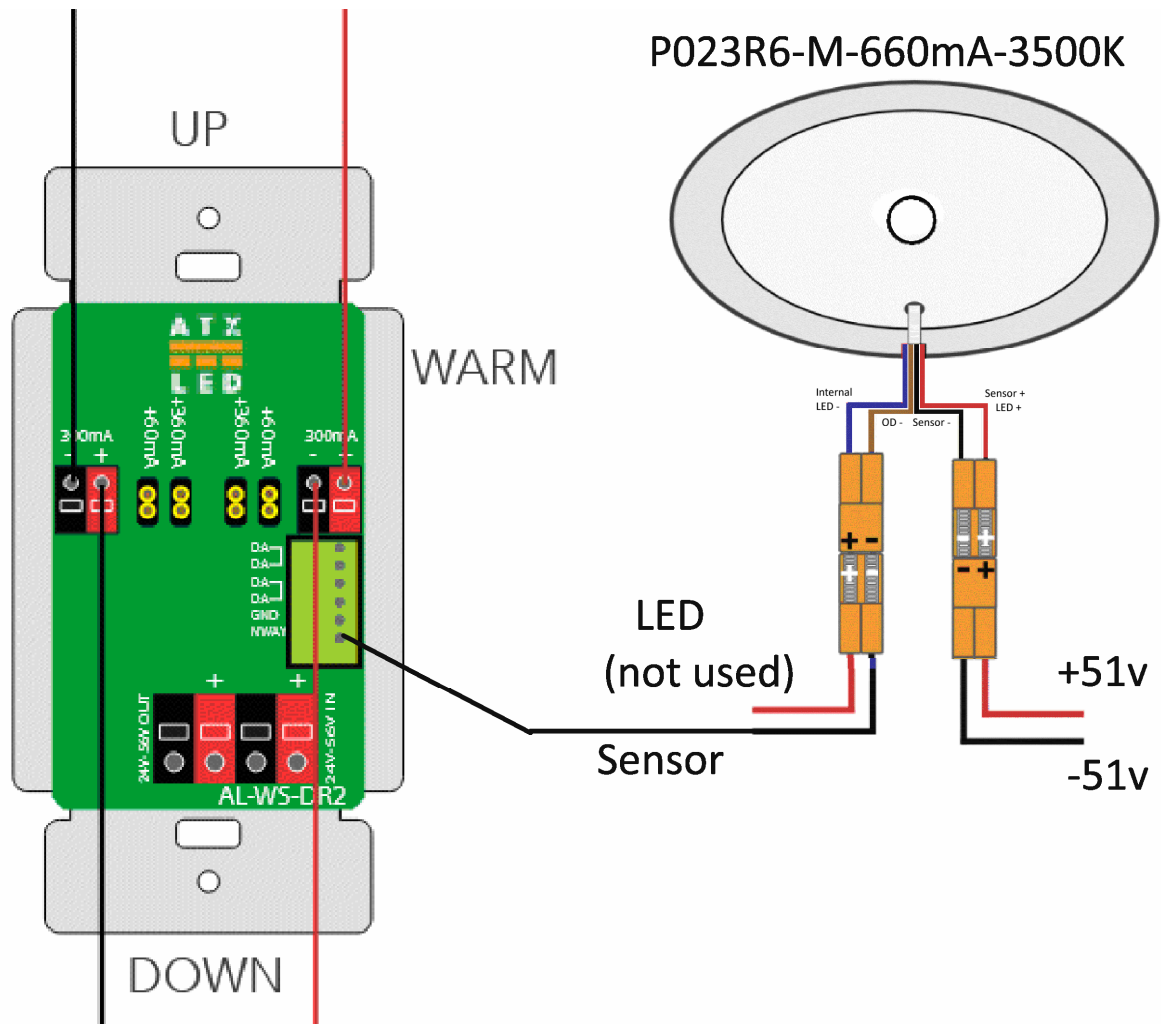
In this example, the ceiling has 5 cans – 4 cans for the DL-120 as tunable white light source, and one as a Sensor only. While the P023R6-M-660mA has a daylight LED in it – in this example, it is left unused.

Please notice that the last DL-120 wire colors are exchanged.



Sensor Only (no light) Wiring example

Use the Sensor only to connect to the N-Way of an AL-WS-DR2 for use as a trigger or macro, use the N-Way input in 2nd short address mode.



Recommended DC Drivers

M is the P023R6-M and # of non M LEDs

DC drivers *	Fixed Color	Tunable White	WiFi	DALI
AL-WS-DR1	M+3			
AL-WS-DR1P/D	M+4			
AL-WS-DR2	(M+3) + 4	M+3		X
AL-WS-DR2C	(M+3) + 4	M+3		
AL-WS-DR2W	(M+3) + 4	M+3	X	
AL-PS-51v96w with On/Off	M+4			

The P023R series of LED fixtures are **ETL listed** and IC rated for direct contact with insulation – recognizing it's cool operating temperatures and distributed heat (no hot spots). **Closet Rated** under NEC codes. **JA8 / Title 24** listed.

Ordering part numbers

Model	Voltage	Current	CCT	CRI	Lumens	Note
P023R6-M-660mA-3000K	7.5-9	0-660mA	3000K	90	540	
P023R6-M-660mA-3500K	7.5-9	0-660mA	3500K	90	540	
P023R6-M-660mA-4000K	7.5-9	0-660mA	4000K	90	540	
P023R6-M-48v6w-3500K	48v	0-120mA	3500K	90	540	No Driver Needed
P023R6-M- 660mA-27/50K	7.5-9	0-660mA	Tunable 2700 to 5000	90	540	Tunable White