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THE STANDARD FOR LIGHTING MANAGEMENT QUALITY SINCE 1953

SPRING SEMINAR

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NALMCO 2020 SPRING SEMINAR

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The Standard for Lighting Management Quality since 1953 www.nalmco.org

Wireless Controls for Light Intensity & Color



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Controls

- What do we think of when we think of controls
 - Dimming
 - Complicated systems
 - Expensive

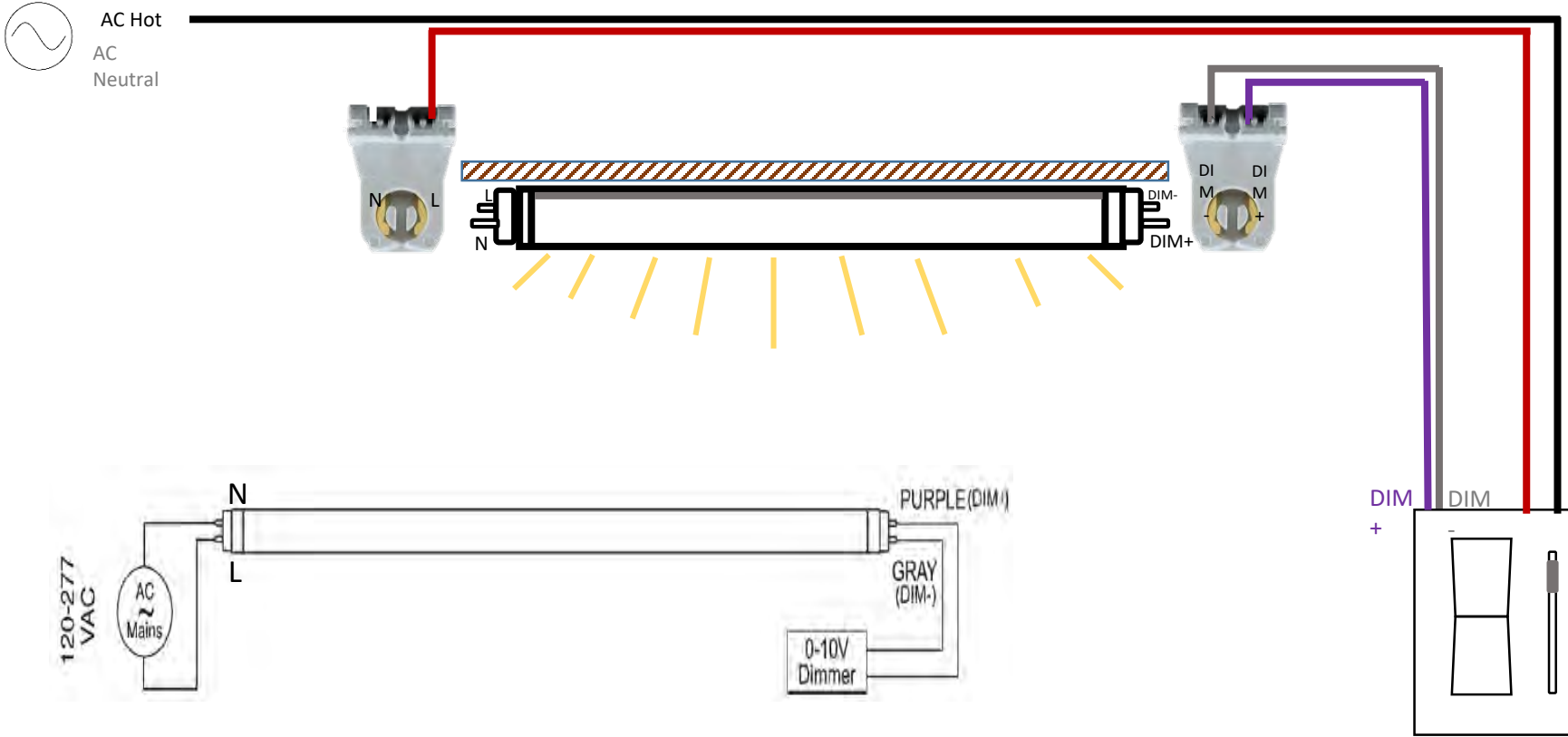


Controls

- Motion sensor
 - Form of controls
 - Simple on off device
- Simple multi level setting
 - Set one time and leave, yet have the ability to change setting if needed



WIRING



Always follow safety procedures in doing light repair and installation.

Eng'g Group

Controls

- Adjustable Lumen Output to match three
- Adjustable CCT for different environment
- Fit for retrofit and new installation
- 120/277V
- 3000K/3500K/4000K
- Beam Angle 110 degree



Controls

- What do we think of when we think of controls
 - Dimming
 - Complicated systems
 - Expensive
- Yet increasingly we have to think of changing color temperature of the light
- Why?



Controls

- Studies have shown that there is an impact on humans from
 - The hue of the light
 - The brightness of the light
 - The saturation of the light
- Hue: This is defined as the color or shade.
 - Blue/White light tends to make us energetic and can disrupt sleep patterns, above 3200-4000K
 - Red/Amber light is least likely to interrupt our internal clock. Late in the day and in the evening, it can help lead to increased Melatonin levels and lead to better sleep, below 3200K



Controls

- **Brightness:** This is the amount of light given off by a light source, usually measured in Lumens or Lux.
 - Some studies have shown that brighter light can intensify emotions
 - Low light does not remove emotions, but has been shown to keep them steady
- **Saturation:** This is the intensity of a color.
 - More saturated hues can have amplifying effect on emotions
 - More muted colors can dampen emotions



Controls

- Circadian Rhythm is our internal clock, it influences:
 - Melatonin secretion
 - Cortisol activity
 - Alertness
- Blue light suppresses levels of melatonin, helping us stay awake and alert.
- Red light increases levels of melatonin helping our bodies rest and sleep



Controls

- At home, school and work it is possible to harness the power of light to promote healthy sleep to boost productivity and overall well being
- However it has to work with the natural pattern of our internal clock



Controls

- Light & School Age Children:
 - Studies have shown that there is a relationship between Light color & intensity and children's ability to learn.
 - The average CCT of 3500K, with more modest intensity, has been shown to be most effective for relaxing activities such as recess and or communicating with peers.
 - The average CCT of 5000K, with average intensity, has been shown to be best for regular activities such as reading.
 - The average CCT of 6500K, with higher intensity, was shown to be best for “intense” activities like problem solving and tests.



Controls

- Light & School Age Children:
 - So clearly the right light color and intensity in a classroom has the potential to help students learn
 - The right light color can also help promote better sleep habits to further help students learn
 - It would appear that we can also help “activate” the brain during class time with the right light color and intensity
- Thus the idea of the use of “dynamic Lighting” – Lighting with different settings for color and intensity that can be changed by the teacher during the day - is showing great promise.



Controls

- So as we move forward being able to control the CCT as well as the light levels will also be required.
- This will require special CCT tunable fixtures or Lamps
- Will add cost and complexity
 - Full building management systems could be used
 - Simple wireless RF system also an option.



Controls

- Has to be done in new as well as older facilities
 - New buildings will have more choices
 - Variety of system are available
 - Hard wires
 - Wireless
 - The advantage is it can be build in from the beginning
 - Existing facilities will need different solutions
 - Retrofit solutions, easy to install and simple to operate
 - Wireless a good option (easier & less costly)



Controls

- With all the solutions out there finding the right one may not be easy.
- Evaluate different options and find the one that best suit you project
- For retrofit something like the following may be a good solution.



Wireless RF System

Controls

- 0-10V Adapter Wireless System
 - No or minimal rewiring
 - Simple Pairing.
 - Simple Commissioning
 - On/Off still functional if wireless system fails
 - Wireless Charging, so never a dead battery issue
 - Turn dimming ready into dimming now
 - Turn color control ready into color control now
- Components: Wall charger, remote control. RF/0-10V adapter



Controls

Fully tunable system like
This



0-10V Adapter
Dual Channel
Dim and CCT



RF Driver
Dual Channel
Dim and CCT



Retrofit Kits
Dual Channel
Dim and CCT



Type B RF lamps



Universal Wall Mount
Wireless Charger
With Emergency Switch



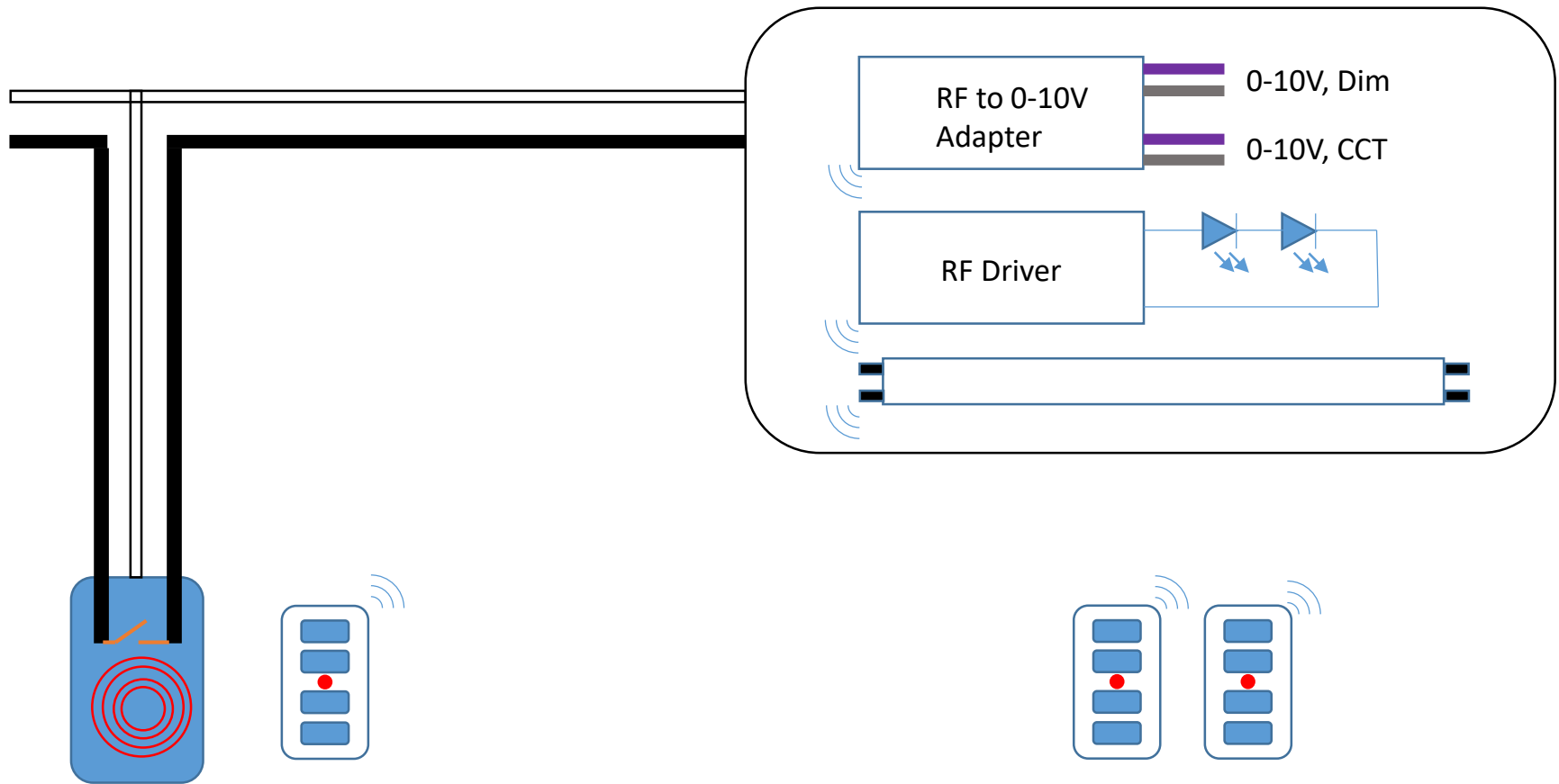
Remote
Wireless Charging



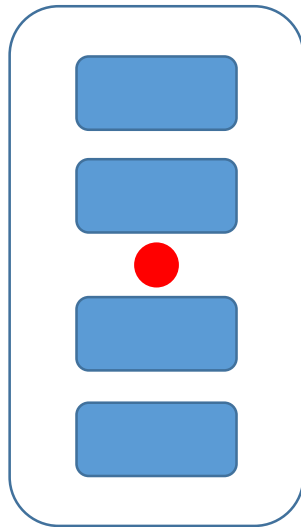
Remote
Anywhere in the room



How it works



How to Use it?



ON

UP

CCT

DOWN

OFF

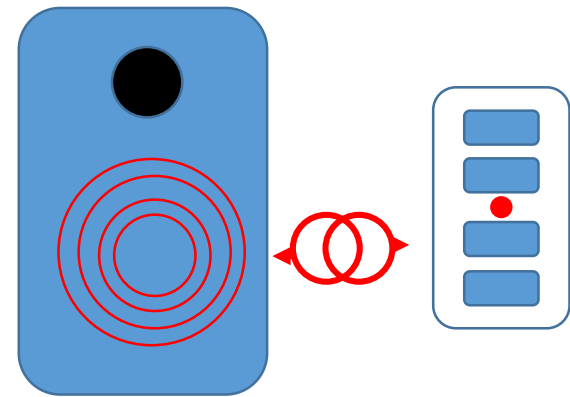
- Press ON, UP or DOWN to turn on light
- Press UP to dim up
- Press Down to dim down
- Press OFF to turn OFF

- CCT is a pin hole. With a fine tip pin, clip or ball pen, push to toggle CCTs



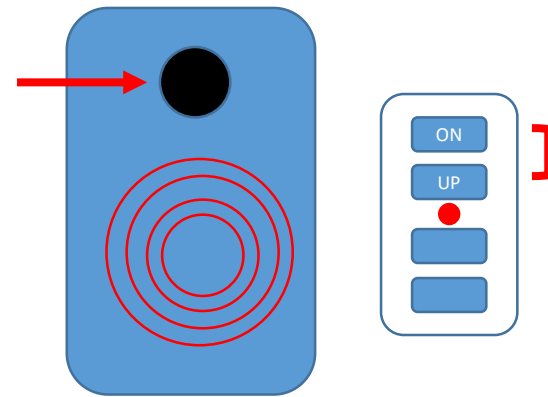
How to Charge Remote

- Put remote on top of wall mount charger
- Magnet will hold remote in place
- Wireless charging remote
- Blinking red – Charging,
Not light – Full



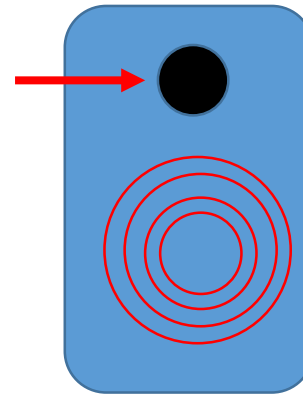
How to Pair the lights with remotes

- Hold ON and UP buttons on Remote
- Push the button on wall charger to turn off then turn on lights
- Lights will have a quick blink to show the pairing is successfully
- Keep the button down for normal use



What if all RF failed?

- Remove remote on wall charger
- Push the button to turn off and turn on light for emergency use
- Request technical support for RF troubleshooting



Questions?



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Thank You!



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