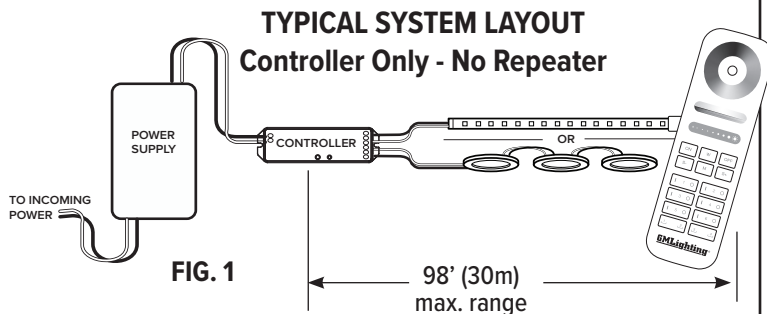# GMLighting®

FEATURES: The Universal Remote provides control for devices with 1 to 5 light channels. This includes LED lights with single color, tunable white, RGB and RGBW or RGB+ Tunable White Channels. The Universal Remote allows for smooth adjustments of RGB color and saturation, white color temperature and brightness level for all combinations. This product uses the 2.4GHz frequency, GFSK control method and features low power consumption, long distance transmission, resistance to interference and fast communication rate.

GENERAL INFORMATION: These low-voltage LED lighting controls are intended to be powered by constant voltage power supplies that are not dimmed by another control. All dimming is to be done by the RF control only. They are to be installed indoors in accordance with the National Electric Code (NFPA 70) and local regulations. The LED driver must be installed in a well-ventilated area. Proper operation requires the free flow of air. Only a qualified electrician should install the hardwired LED driver. **SEE LAST PAGE FOR COMPLETE LIST OF POWER SUPPLIES THAT GO WITH THIS SYSTEM.**
The diagram below shows a basic layout: Incoming power to Power Supply, Power Supply to Controller, Tape and/or Fixtures connect to Power Supply **(FIG. 1)**
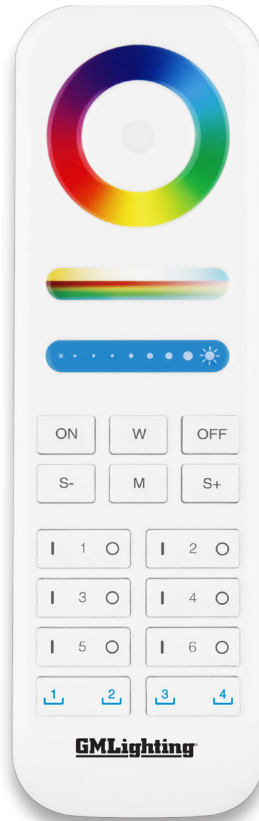
INSTALLATION PROCESS:
1. INSTALL POWER SUPPLIES
2. CONNECT POWER SUPPLIES TO INCOMING POWER
3. CONNECT POWER SUPPLIES TO CONTROLLER & REPEATERS
4. CONNECT TAPE / FIXTURES
5. PROGRAM UNIVERSAL REMOTES
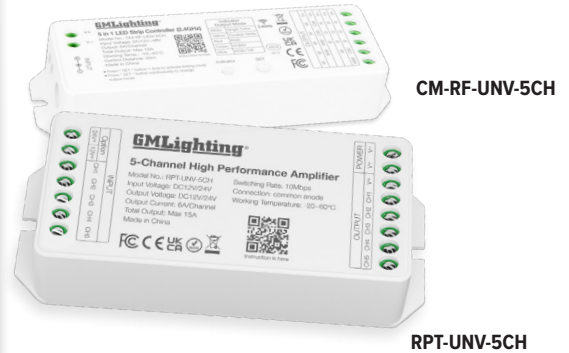6. LINKING / UNLINKING HAND CONTROLS TO CONTROL MODULES (Do this step last)

No Wifi Needed!

CM-RF-UNV-5CH

RPT-UNV-5CH

HC-RF-UNV-5CH
MAX RANGE FROM
UNIVERSAL REMOTE TO CONTROLLER: 98 FT.

TOOLS / PARTS NEEDED
• (2) AAA 1.5VDC batteries for Universal Remote.
• 1/8" wide flat head screwdriver for controller terminals.
• Drill and driver bits for power supply and controller mounting.
PARTS INCLUDED
• All devices and components sold separately
• Hand Control includes a mounting clip and hardware. Batteries not included.
• Double-sided tape option for mounting Control Module and Repeater (if used for multiple runs)

FOR CLASS 2 OPERATION:
• 12V System: Do not exceed 60W load for each Controller or Repeater.
• 24V System: Do not exceed 96W load for each Controller or Repeater.

POWER SUPPLY LOCATION: Power supply needs adequate ventilation. Do not place power supply in an area where airflow is blocked or impeded.

STEP 2: CONNECT POWER SUPPLIES TO INCOMING POWER: Follow instructions that come with power supply for proper installation directions.

STEP 3: CONNECT POWER SUPPLIES TO CONTROLLER & REPEATERS:
TURN POWER OFF and connect (+ and -) leads to proper terminals of Controller and (if using for multiple runs) Repeaters. See labels and diagrams on Controller for proper input location **(FIG. 2),** or if available, plug power supply directly into DC jack input **(FIG. 3) in** Controller. See page 3 and 4 for information on wiring Repeaters. **TURN ON POWER.** LED indicator on controller should be lit.

TYPICAL SYSTEM LAYOUT
Controller Only - No Repeater

POWER SUPPLY

CONTROLLER

OR

TO INCOMING POWER

FIG. 1

98' (30m) max. range

STEP 1: INSTALL POWER SUPPLIES
WARNING: TURN OFF POWER BEFORE MODIFYING CONNECTIONS.
READ BEFORE YOU INSTALL: Check the label and ensure that the LED driver (power supply) has the proper input voltage, output voltage and wattage for the job. Check the wire color to ensure that they match the wiring diagram in this instruction sheet.

FIG. 2

FIG. 3

Controller Only

OR

Installation and Operating Instructions
Universal RF Controller
CM-RF-UNV-5CH
Low Voltage Control System for 1 to 5 Channel LED Sources

Controller CM-RF-UNV-5CH

- Connection Terminal Screws
- DC Terminals
- Power Supply In
- DC Jack Input
- LED Indicator for Output Mode
- SET Button for Output Mode
- Terminal Output Sockets (on side)
- 1.5" (38mm)

STEP 4: CONNECT TAPE / FIXTURES:

(a) Determine the type of tape or fixture that will connect to Controller by locating it on the charts below .

(b) Remove 1/2" of insulation to expose connection wires from tape **(FIG. 4)**. Loosen Connection Terminal Screws from Controller (do not remove, just loosen). Insert fixture connection wires in the appropriate output terminals. Tighten Connection Terminal Screws to hold wires firmly in Controller.
See pages 3 and 4 for wiring of LED loads to Repeaters.

STEP 5: PROGRAM CONTROLLER
NOTE: CONTROL MODULE MUST HAVE PROPER POWER SUPPLY AND LED LOAD CONNECTED TO CORRECT TERMINALS BEFORE PROGRAMMING
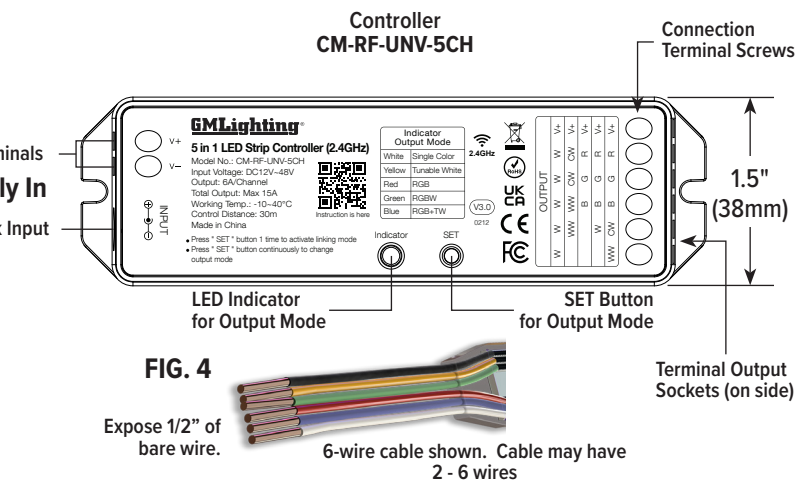REFER TO TABLE BELOW.

FIG. 4

Expose 1/2" of bare wire.

6-wire cable shown. Cable may have 2 - 6 wires

(a) See Indicator Output Mode table for LED color in first column. The color matches the number of channels needed.

(b) Press SET button once. LED indicator will blink. (Program Mode)

(c) Press SET button until LED indicator matches the mode color needed.

TIP: Sequence is (White, Yellow, Red, Green, Blue). Yellow and Green look similar. Cycle through sequence to be sure you are going from White to stop on Yellow or from Red to

OPERATIONAL SETTINGS

LED Indicator	Controller Output Mode	OUTPUT					
		Terminal 1	Terminal 2	Terminal 3	Terminal 4	Terminal 5	Terminal 6
White	Single Color	White	White	White	White	White	V+
Yellow	Tunable White	—	Warm White	Warm White	Cool White	Cool White	V+
Red	RGB	—	—	Blue	Green	Red	V+
Green	RGBW	—	White	Blue	Green	Red	V+
Blue	RGB+TW	Warm White	Cool White	Blue	Green	Red	V+

LED Channel Codes:

R = Red   **CW** = Cool White (used with TW)
G = Green   **WW** = Warm White (used with TW)
B = Blue   **W** = White (single color)

FIG. 4

Single Color Mode Setting

Use 12V or 24V dc to match LED voltage
LED = **WHITE**
to other LED Groups

Tunable White Mode Setting

Use 12V or 24V dc to match LED voltage
LED = **YELLOW**
to other LED Groups

RGB Mode Setting

Use 12V or 24V dc to match LED voltage
LED = **RED**

RGBW Mode Setting

Use 12V or 24V dc to match LED voltage
LED = **GREEN**

RGBTW Mode Setting
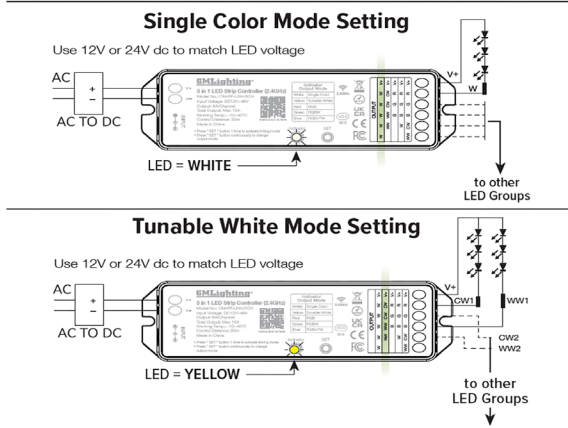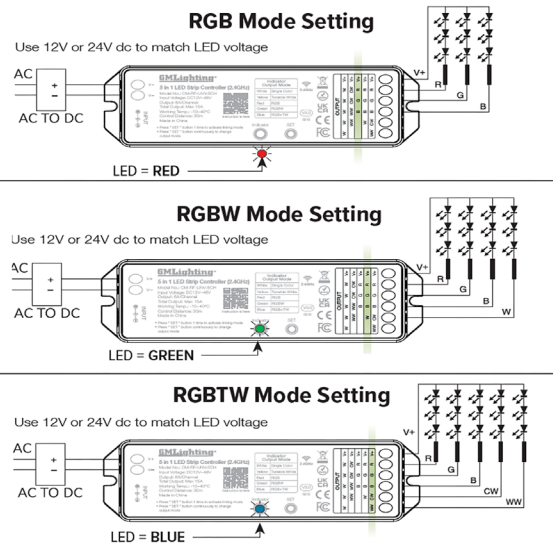
Use 12V or 24V dc to match LED voltage
LED = **BLUE**

WIRING AND INSTALLATION TIPS

MAKE SURE YOU HAVE CONNECTED THE RIGHT POWER SUPPLY:
Check for proper voltage and connection of (+ and -) leads to terminals otherwise the controller will not function.

TURN POWER OFF WHEN CONNECTING POWER SUPPLIES, TAPE OR FIXTURES TO CONTROLLER OR REPEATERS. TURN POWER ON FOR PROGRAMMING ONLY AFTER YOU'VE FINISHED CONNECTING TAPE OR FIXTURES TO CONTROLLER.
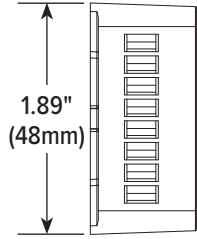
Proceed to next page to hook up multiple runs.

Installation and Operating Instructions
Universal High Performance
RF Repeater
Low Voltage Control System
for 1 to 5 Channel LED Sources

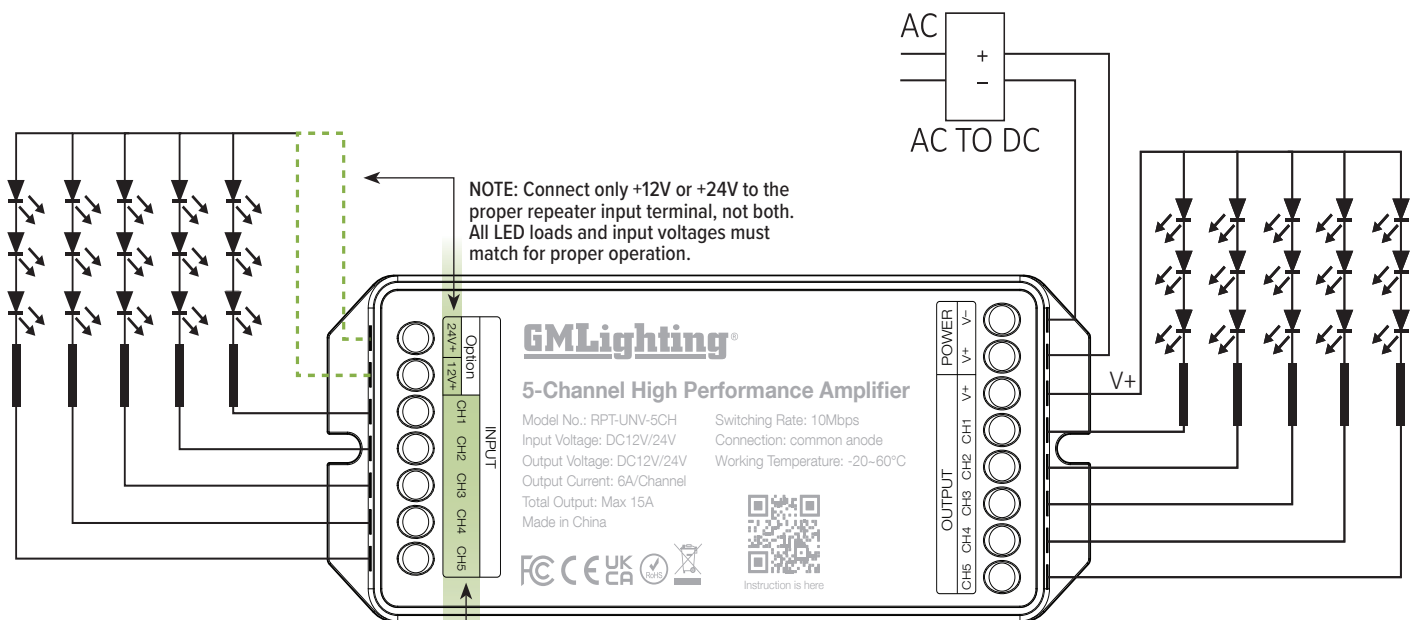**OPTIONAL REPEATER WIRING FOR STEP 3 AND STEP 4:**
The Repeater adds additional 'runs' onto your system that can be controlled by the same hand controller. See OPERATIONAL SETTINGS chart on previous page . Using specified LED colors will make it easier to install and troubleshoot if required. This scheme aligns LED color with the wiring required by the CM-RF-UNV-5CH controller.

Repeater Amplifier
RPT-UNV-5CH

1.89"
(48mm)

5-Channel High Performance Amplifier
Model No.: RPT-UNV-5CH
Input Voltage: DC12V/24V
Output Voltage: DC12V/24V
Output Current: 6A/Channel
Total Output: Max 15A
Made in China
Switching Rate: 10Mbps
Connection: common anode
Working Temperature: -20~60°C

Instruction is here

4.53"
(115mm)

Use 12V or 24V dc to match LED voltage

AC
+
−
AC TO DC

NOTE: Connect only +12V or +24V to the proper repeater input terminal, not both. All LED loads and input voltages must match for proper operation.

5-Channel High Performance Amplifier
Model No.: RPT-UNV-5CH
Input Voltage: DC12V/24V
Output Voltage: DC12V/24V
Output Current: 6A/Channel
Total Output: Max 15A
Made in China
Switching Rate: 10Mbps
Connection: common anode
Working Temperature: -20~60°C

Instruction is here

V+

Use the wiring method in the chart to match the wiring from the control module.

Use **1 to 5 channels** as needed for the application. Match up input and output terminal number. Leave unneeded terminals disconnected.
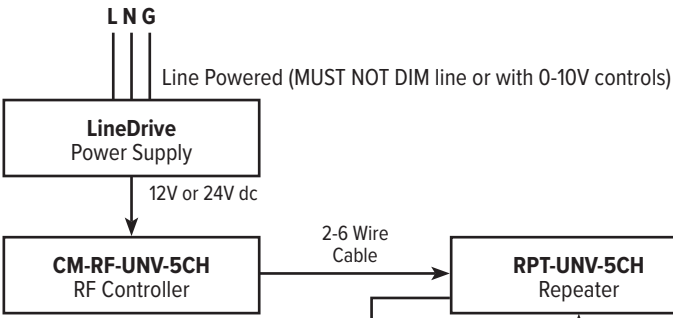**Not all 5 channels required.**

Example: A single color LED load can be used as the White channel and connected to Terminal 1 and Terminal 6 (common).

RF Repeater Wiring Diagram
Typical Layout View - Multiple Runs Using Repeaters

<u>UNIVERSAL RF CONTROLLER WIRING DIAGRAM</u>

Incoming power for (L N G) options can be 120V or 277V.
Check power supply for proper input voltage and output power required.
Power Supply output voltage must match LED operating voltage. (12VDC or
24VDC)Power supply used **MUST NOT BE DIMMED** at the input to properly
power the controls.
See Controller instructions for pairing and wiring details.

**The number of wires required by the cables below are derived from the
number of channels in a tape.**

1 CHANNEL (Single color LED) = 2 wires
2 CHANNELS (Tunable White) = 3 wires
3 CHANNELS (RGB) = 4 wires
4 CHANNELS (RGBW) = 5 wires
5 CHANNELS (RGB+TW) = 6 wire**s**

L N G

Line Powered (MUST NOT DIM line or with 0-10V controls)

LineDrive
Power Supply

12V or 24V dc

CM-RF-UNV-5CH
RF Controller

2-6 Wire
Cable

98ft. (30m) max distance

HC-RF-UNV-5CH
RF Universal Remote
Control
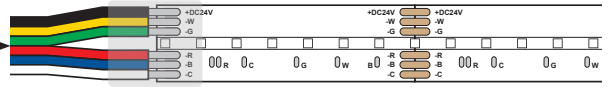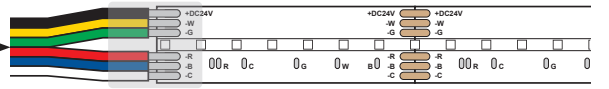
2-6 Wire
Cable

2-6 Wire
Cable

FOR CLASS 2 OPERATION

• Use 60W maximum on 12V power
supplies for each Controller or Repeater.

* Use 96W maximum on 24V power supplies
for each Controller or Repeater.

RPT-UNV-5CH
Repeater

12V or 24V dc

LineDrive
Power Supply

Line Powered (MUST NOT DIM line or with 0-10V controls)

L N G

2-6 Wire
Cable

EXAMPLE: 5 CHANNEL LED LOAD SHOWN

1-5 Channel, Class 2, LED Light Source

RPT-UNV-5CH
Repeater

12V or 24V dc

LineDrive
Power Supply

Line Powered (MUST NOT DIM line or with 0-10V controls)

L N G

2-6 Wire
Cable

EXAMPLE: 5 CHANNEL LED LOAD SHOWN

1-5 Channel, Class 2, LED Light Source

RPT-UNV-5CH
Repeater

12V or 24V dc

LineDrive
Power Supply

Line Powered (MUST NOT DIM line or with 0-010V controls)
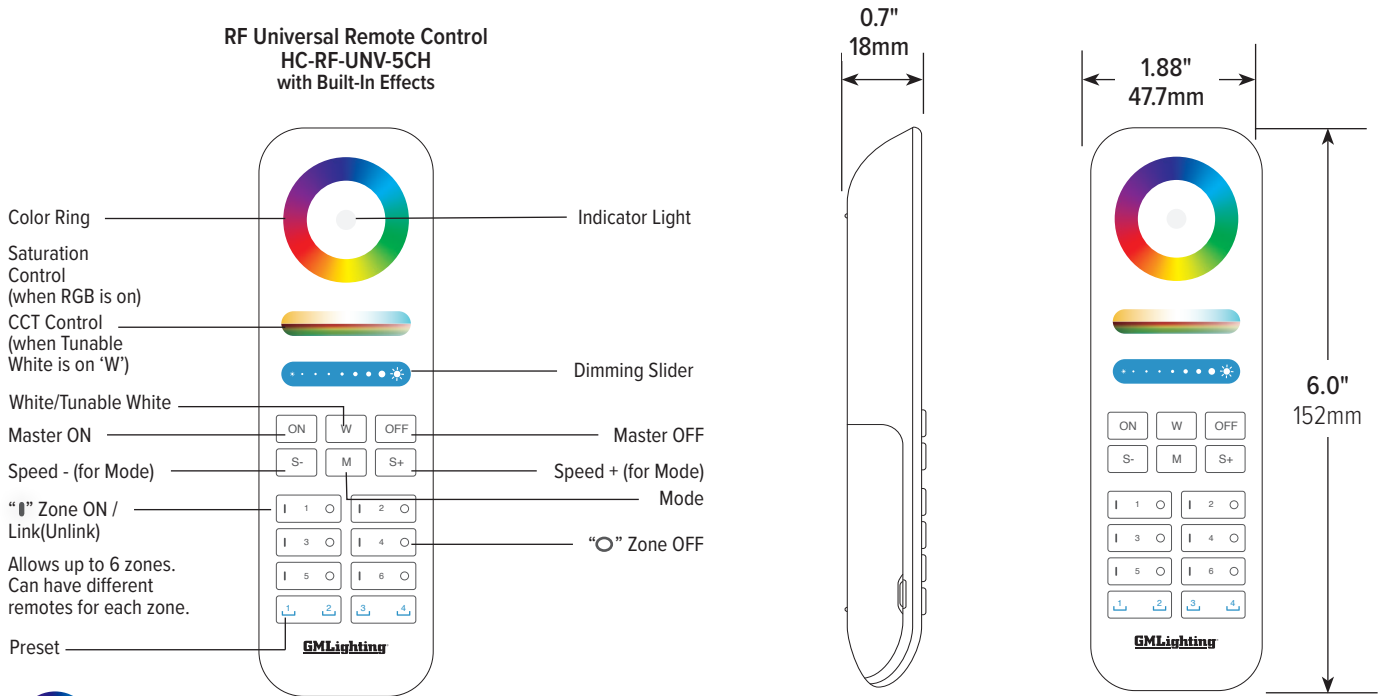
L N G

2-6 Wire
Cable

EXAMPLE: 5 CHANNEL LED LOAD SHOWN

1-5 Channel, Class 2, LED Light Source

*Multiple power supplies can be replaced
with a single multi-output power supply.

Example: (3) **LD-E-UNV96-24** can be
replaced by (1) **LD-E-UNV300-24**

RF Universal Remote Control
HC-RF-UNV-5CH
with Built-In Effects

Color Ring — ○ — Indicator Light

Saturation Control (when RGB is on)

CCT Control (when Tunable White is on 'W')

White/Tunable White

Master ON — | ON | W | OFF | — Master OFF

Speed - (for Mode) — | S- | M | S+ | — Speed + (for Mode)

Mode

" I " Zone ON / Link(Unlink) — | I 1 O | I 2 O | — " O " Zone OFF

Allows up to 6 zones. Can have different remotes for each zone.

Preset — | 1 | 2 | 3 | 4 |

0.7"
18mm

1.88"
47.7mm

6.0"
152mm

Touch the color ring to adjust light colors in RGB mode.

For white color tuning, adjust light color temperature; For RGB color light modes, adjust color saturation.

Slide the brightness slider to adjust light the brightness.

W Short press switch to white light mode.

ON Short press: control all paired lights; Long press: dim top brightness for all lights.

OFF Short press: turn off all paired lights; Long press: turn on "night light mode" for all lights.

M Short press switch to Dynamic Mode.

S+ Under dynamic mode: Speed up dynamic mode while pressing shortly; Under static mode: 10min delay off while doing long press (countdown started once the light flashes one time).

S– Under dynamic mode : slow down speed of dynamic mode once press shortly; Under static mode: 60s delay off while doing long press countdown started once the light flashes one time).

I 6 O There are 6 zone buttons for turning lights on/off. ZONE number is located in the middle of the button. Press "I" for ON (or when linking), "0" for OFF.

1 ... 4 Short press: activate preset scene Long press 3 seconds: save color or dynamic mode. Save up to 4 preset scenes per zone. (the light flashes one time slowly once completed successfully).

## PRESET DYNAMIC MODES: Adjustable Brightness / Saturation / Speed)

Mode Setting	Output for White, Yellow Setting on Control Module	Output for Red, Green, Blue Setting on Control Module			LED Color Legend
		Speed	Change	LED Colors	
1	N/A	Fast	Jump	C / Y / P / Random	**B** = Blue
2	N/A	Medium	Fade	R / O / G / C / B / P	**C** = Cyan
3	N/A	Very Slow	Fade	G / C / B / P	**G** = Green
4	N/A	Slow	Fade	G / C / B / P	**LG** = Light Green
5	N/A	Medium	Fade	R / G / C / B / P	**O** = Orange
6	N/A	Slow	Fade	R / W / B	**P** = Pink
7	N/A	Slow	Jump	P / B / W	**R** = Red
8	N/A	Medium	Fade	R / W / G / W / G / B	**W** = RGB White
9	N/A	Very Slow	Fade	R / P / C / B / LG / Y / P	**Y** = Yellow

Step 6: Linking / Unlinking Hand Controls to Controllers

- Power supply, RF Controller, R epeaters and LED load must be wired properly before hand comtrols can be linked.

- Each Controller module with a LED load must be linked with the remore control before use.

- More than one Controller can be linked to each hand control.

- More than one hand control can be linked to each Controller.

Linking Code Instructions

1: Select choice A or B to link the hand control to the Controller module. Not both.
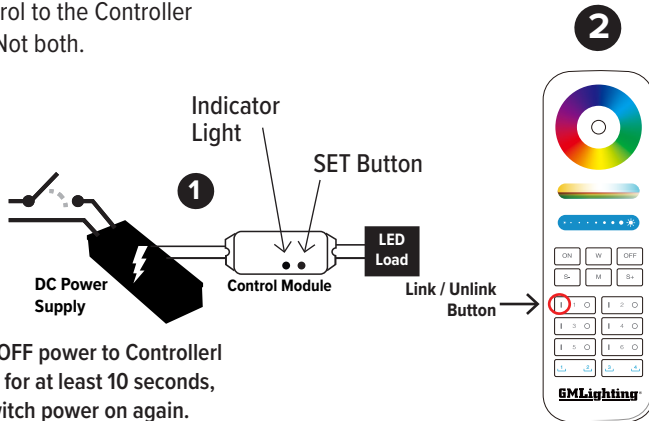
1A Switch OFF power to Controllerl module for at least **10** seconds, then switch power on again.

OR

1B Leave power ON and press the SET button on the Controller.

2. Select desired zone button. Short press **"1" button 3 times within 3 seconds** of switching on power to the Controller.
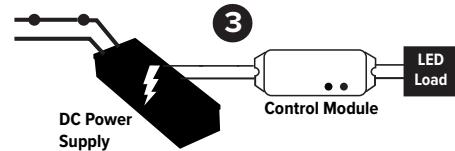
3. 'LED LOAD blinks 3 times slowly showing that linking is successful.

If light does not blink slowly, linking has failed. Follow above steps again.
NOTE: Lights that have been linked cannot be linked again until they are unlinked. See below for unlinking instructions.

Unlinking Code Instructions

1: Select choice A or B to link the hand control to the Controller. Not both.
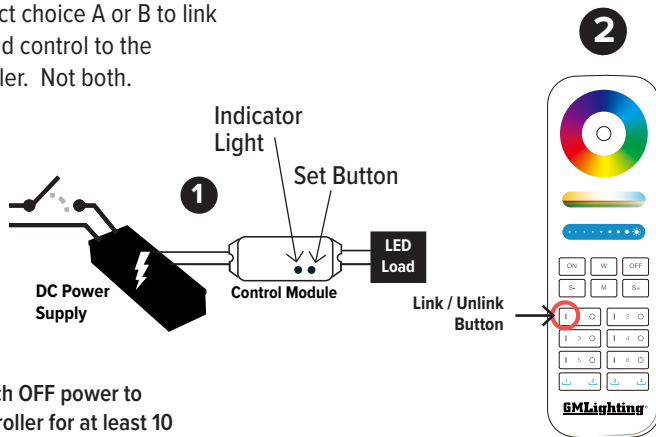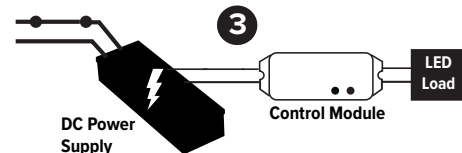

1A Switch OFF power to Controller for at least **10** seconds, then switch power on again.

OR

1B Leave power ON and press the SET button on the Controller.

2. Select linked zone button. Short press **"1" button 5 times within 3 seconds** of switching on power to the Controller.

3. LED load blinks 10 times quickly when unlinking is done successfully.

Unlinking failed if light is not blinking quickly. Repeat above steps.
NOTE: Lights that have not been linked do not need to be unlinked.

Zone Use for Group Control

• Linking lights in different groups allows flexibility of dimming and different zone control. (Example: Press "1" first and adjust dimming slider to either lower or raise group light level).

• Each zone must have the same number of channels for all lights within a group. (Example: Zone 1 = TW or RGBW, not both in a group).

• Different zones can have a different number of channels for each group of lights. (Example: Zone 1 = TW, Zone 2 = RGBW).

• There can be up to 4 preset scenes per zone. Each one can have different scene settings.
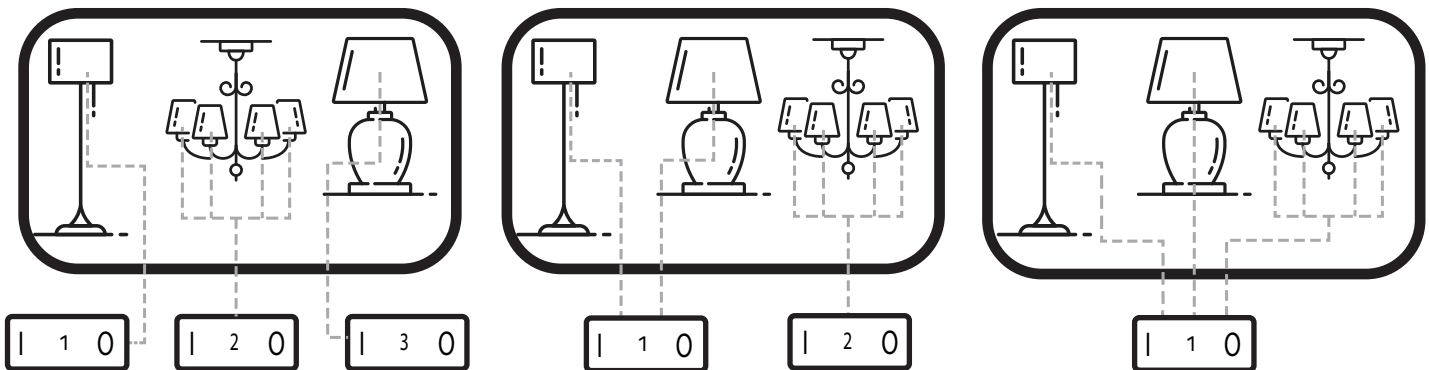
Notes for Proper Operation

• Many lights / Controllers can be added to each zone.

• Only 1 light per zone from a single Universal Remote can be linked.

• If when using the Universal Remote the indicated lamp is blinking quickly, change the battery to avoid improper operation. Do not use sub-standard or poor quality batteries. These are prone to leakage which can damage the Universal Remote.'

• This Universal Remote utilizes precision electronics and should not be exposed to high temperatures or humidity. When Universal Remote is not used for a long period of time, remove batteries and store in a dry, static-free environment.

• Do not mount the control module or use the hand control near electric motors or appliances. Electrical noise from these devices may reduce control distance.

Replacements for Discontinued Controls:

HCCM-RF-RGBTW:
Replacing each HCCM-RF-RGBTW requires using (1) CM-RF0UNV-5CH and (1) RPT-UNV-5CH for a complete substitution. These discontinued controls ARE COMPATIBLE with new controls. You may only need to replace the hand control or Controller

RPT-RGBTW:
Replacing each RPT-RGBTW (repeater) requires (1) RPT-UNV-5CH for a complete substitution. This discontinued repeater IS COMPATIBLE with new controls. You may only need to replace the hand control or control module. If repeater is functioning, a new replacement is not needed.

IMPORTANT: Replacements must be wired properly to the control module for proper operation of the number of channels.

RGBW-RWC (RGBW - 4-Channel) or CTK-RWC (Color tuning white - 2-Channel)
Replacing each RGBW-RWC or CTK-RWC requires using (1) CM-RF-UNV-5CH and (1) HC-RF-UNV-5CH as updated versions. The discontinued controls are NOT COMPATIBLE with new controls. Replacements must be set up and linked for proper operation of the number of channels used (4 channel RGBW or 2 channel Color Tuning White).

RGBTW-RP:
Replace each RGBW-RP (repeater) requires (1) RPT-UNV-5CH for a complete substitution. This discontinued repeater is NOT COMPATIBLE with new controls for all functions. Replacements must be wired properly to the control module for proper operation of the number of channels.

Power Supplies Suitable For
5 Channel Universal RF Control System

LD-E-UNV30

LD-XD-UNV60-12

LD-XD-UNV200-24

RECOMMENDED DRIVERS

Product No.	Description	Watts	Weight	Dimensions
LD-E-UNV30	12VDC / 24VDC — 30W — 120V or 277V – 12V/2.5A — 24V/1.25A	30W	1.0 lbs	6.10"L x 3.35"W x 1.33"H
LD-E-UNV60	12VDC / 24VDC — 60W — 120V or 277V – 12V/5A — 24V/2.5A	60W	2.5 lbs	8.25"L x 4.10"W x 1.56"H
LD-E-UNV96-24	24VDC — 96W — 120V or 277V — 4 amps	96W	2.5 lbs	8.25"L x 4.10"W x 1.56"H
LD-E-UNV200-24	24VDC — 192W — 120V or 277V — 4 amps/channel — 2 x 96W	192W (96Wx2)	4.7 lbs	9.50"L x 6.35"W x 1.56"H
LD-E-UNV300-24	24VDC — 288W — 120V or 277V — 4 amps/channel – 3 x 96W	288W (96Wx3)	4.7 lbs	9.50"L x 6.35"W x 1.56"H
LD-XD-UNV20-12	12VDC — 20W — 120V or 277V — 1.67 amps	20W	1.87 lbs	7.93"L x 3.36"W x 1.33"H
LD-XD-UNV40-12	12VDC — 40W — 120V or 277V — 3.33 amps	40W	1.87 lbs	7.93"L x 3.36"W x 1.33"H
LD-XD-UNV60-12	12VDC — 60W — 120V or 277V — 5 amps	60W	2.2 lbs	8.29"L x 4.10"W x 1.59"H
LD-XD-UNV180-12	12VDC — 180W — 120V or 277V — 5 amps/channel —3 x 60W channel	180W (60Wx3)	4.4 lbs	9.51"L x 6.35"W x 1.59"H
LD-XD-UNV20-24	24VDC — 20W — 120V or 277V — 0.83 amps	20W	1.87 lbs	7.93"L x 3.36"W x 1.33"H
LD-XD-UNV40-24	24VDC — 40W — 120V or 277V — 1.67 amps	40W	4.4 lbs	7.93"L x 3.36"W x 1.33"H
LD-XD-UNV60-24	24VDC — 60W — 120V or 277V — 2.5 amps	60W	2.2 lbs	8.29"L x 4.10"W x 1.59"H
LD-XD-UNV96-24	24VDC — 96W — 120V or 277V — 4 amps	96W	2.2 lbs	8.29"L x 4.10"W x 1.59"H
LD-XD-UNV200-24	24VDC — 200W — 120V or 277V — 4 amps/channel — 2 x 96W	192W (96Wx2)	4.4 lbs	9.51"L x 6.35"W x 1.59"H
LD-XD-UNV300-24	24VDC — 300W — 120V or 277V — 4 amps/channel — 3 x 96W	288W (96Wx3)	4.4 lbs	9.51"L x 6.35"W x 1.59"H

Please see our website for updated power supply specifications and information.

NOTE: Must not dim LD-XD power supplies when used to power a low voltage dimmer control.

CORD AND PLUG DRIVERS

Model	Description	Watts	Weight	Dimensions
LTP24-48	24VDC - 48W - 2 amps - 120V - 120V cord (72") and plug	48W	1.8 lbs	4.68"L x 2.05"W x 1.25"H
LTP24-90	24VDC - 90W - 3.75 amps - 120V - 120V cord (72") and plug	90W	1.8 lbs	4.68"L x 2.05"W x 1.25"H
LTP-2	12VDC - 24W - 2 amps - 120V - 120V cord (72") and plug	24W	10.4 oz	3.75"L x 1.25"W x 1.25"H
LTP-6	12VDC - 60W - 5 amps - 120V - 120V cord (72") and plug	60W	14.8 oz	4.5"L x 2"W x 1.25"H

Please see our website for updated power supply specifications and information.