

NEC® 2020 Wire Changes

This document describes changes to wire colors on Lutron products driven by changes made to the 2020 edition of the National Electric Code (NEC®). It explains relevant changes to the National Electric Code and lists Lutron products that have been modified to comply with these changes. It also describes how new installations found to be non-compliant with the updated version of the code may be made compliant.

Introduction and Explanation of Changes

The 2020 edition of the National Electric Code includes the following clause:

410.69 Identification of Control Conductor Insulation

“Where control conductors are spliced, terminated, or connected in the same luminaire or enclosure as the branch-circuit conductors, the field-connected control conductor shall not be of a color reserved for the grounded branch-circuit conductor or the equipment grounding conductor. This requirement shall become effective January 1, 2022”.

Informational Note: “See 200.6 for identification of grounded conductor and 250.119 for identification of equipment grounding conductor”.

Exception: “A field-connected gray-colored control conductor shall be permitted if the insulation is permanently re-identified by marking tape, painting, or other effective means at its termination and at each location where the conductor is visible and accessible. Identification shall encircle the insulation and shall be a color other than white, gray, or green”.

Affected conductor colors are specified in NEC® 200.6 and NEC® 250.119 as any of the following:

- Solid white
- Solid gray
- Solid green
- Green with any number of yellow stripes
- Any non-green color with three (3) white stripes or three (3) gray stripes

Impact to Lutron Products

Wire colors have been changed on several products to help customers comply with the newest edition of the National Electric Code. The affected products and the details of the changes are described in the following sections.

Wired 0-10 V controls

Several Lutron products, including wallbox dimmers, occupancy/vacancy sensors, and PowPak products, have used purple (+) and gray (-) wires for 0-10 V control in the past. On newer products, the negative (-) control wire will be pink instead of gray.

Family	SKU	Old	New
0-10 V wallbox dimmers and sensors	DVSTV-XX DVSCSTV-XX 36WH23 36WH24 36WH25	0-10 V control wires are purple (+) and gray (-)	0-10 V control wires are purple (+) and pink (-)
	DTVV-XX DVSCTV-XX		
	MS-Z101-XX MS-Z101-V-XX WMS-Z101-XX WMS-Z101-V-XX 36WH09 36WH11 36WH12 36WH13 36WH15 36WH16 36WH20 36WH22		
	MRF2S-8SD010-XX MRF2S-8SDV010-XX		
	NFTV-XX		
	NTSTV-XX 19YP95		
Vive ¹	FCJS-010 FCJS-010-BULK-8 FCJS-010-EM	0-10 V control wires are purple (+) and gray (-)	0-10 V control wires are purple (+) and pink (-)
	RMJS-8TN-DV-B RMJS-8T-DV-B-EM		
Limelight	LL-EXTMOUNT	0-10 V control wires are purple (+) and gray (-)	0-10 V control wires are purple (+) and pink (-)

¹. Vive PowPak dimming modules that are not listed in this table have not been modified.

Products using IR control wire (EcoSystem)

The following Lutron products have used a solid white control wire for IR applications in the past. On newer products, this wire will be white with a single red stripe (denoted as white/red).

Product	Model Number	Old	New
IR sensors	EC-DIR-WH	IR control wire is solid white	IR control wire is white with a single red stripe
IR keypads	PX-xx(xx)-xxx-xxx		
EcoSystem cables	See "Cables" section below		

Impact to Lutron Products (continued)

Cables

Green and white wires contained in the following cables are also being updated to include stripes of different colors. The changes to the cables are described in the table below.

Family	Model Number	Original Color Scheme	Wire Change	New Color Scheme
QSH	QSH-CBL-L-500	Black - Red - White - Violet	White → White with blue stripe (white/blue)	Black - Red - White/Blue - Violet
	QSH-CBL-M-500			
	QSH-CBLP-L-500			
	QSH-CBLP-M-500			
GRX	GRX-CBL-46L-250	Black - Red - White - Violet - Orange	White → White with blue stripe (white/blue)	Black - Red - White/Blue - Violet - Orange
	GRX-CBL46L-500			
	GRX-PCBL-46L-250			
	GRX-PCBL-46L-500			
	GRX-CBL-346S-500	Black - Red - White - Violet	White → White with blue stripe (white/blue)	Black - Red - White/Blue - Violet
	GRX-PCBL346S-500			
QS DMX	GRX-CBL-DMX-500	Black - Red - White - Green	White → White with blue stripe (white/blue)	Black - Red - White/Blue - Orange/ White
			Green → Orange with white stripe (orange/white)	
EcoSystem	C-PCBL-522S-CL-1	Black - Red - White - Blue - Yellow	White → White with red stripe (white/red)	Black - Red - White/Red - Blue - Yellow
	C-CBL-522S-WH-1			

Products that are not changing

Products that fall into one or more of the following categories are not affected by the updates to the National Electric Code and have not been modified.

- Products using 0-10 V or IR control that use terminal blocks or screw terminals instead of wires
 - TVI-LMF-2A, QSMx-xW-x, etc.
- Products that will be obsolete on or before January 1, 2022
 - CC-4BRL keypads, BCI-010, FCJ-010, etc.

Workaround/Re-identification

New installations using products built before the implementation of this standard may be deemed non-compliant if inspected on or after January 1, 2022. In this event, NEC® section 410.69 includes the following provision for re-identification of wires to make an installation pass inspection.

– “A field-connected gray-colored control conductor shall be permitted if the insulation is permanently re-identified by marking tape, painting, or other effective means at its termination and at each location where the conductor is visible and accessible. Identification shall encircle the insulation and shall be a color other than white, gray, or green.”

This provision allows customers to re-identify wires whose colors are not compliant with the updated standard by using the means described above.

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