

UL Listed Retrofit Solution for Savant/LiteTouch™ Systems for HomeWorks QSX

1.0 Overview

This application note demonstrates a retrofit solution for centralized Savant/LiteTouch™ lighting systems involving a HomeWorks QSX (HWQSX) system. The aim is to provide a simple solution without the need for an infrastructure overhaul.

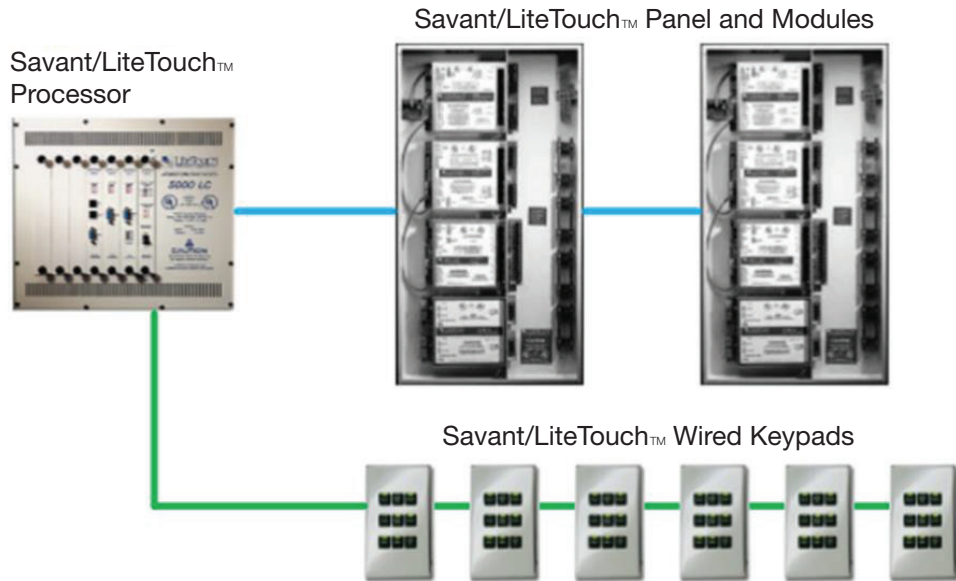
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2.0 Centralized Lighting Panel Retrofit

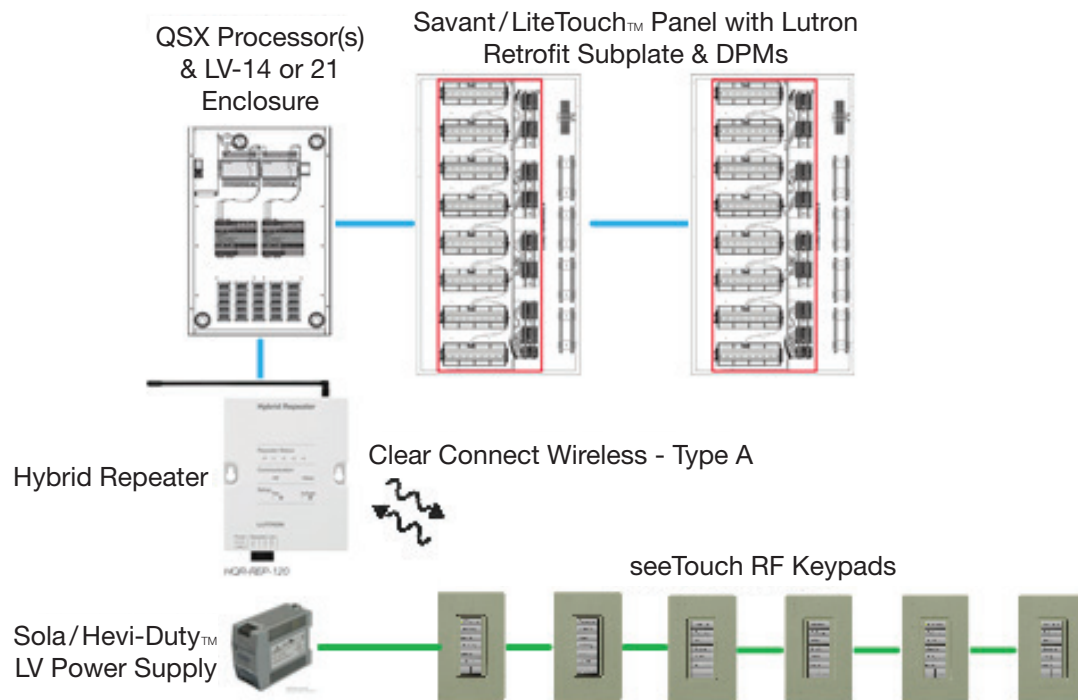
2.1 Retrofit Solution Diagrams

2.1.1 Existing Savant/LiteTouch™ Installation



- Existing LiteTouch™ Keypad Wire (16 AWG [1.5 mm²])
- 4 Conductor Cable (18 AWG [0.75 mm²], 22 AWG [0.34 mm²])

2.1.2 HomeWorks QSX Retrofit Solution



- Existing LiteTouch™ Keypad Wire (16 AWG [1.5 mm²])
- 4 Conductor Cable (18 AWG [0.75 mm²], 22 AWG [0.34 mm²])

2.0 Centralized Lighting Panel Retrofit (continued)

2.2 Savant/LiteTouch™ Module Cross Reference Table

Savant/LiteTouch™ Model #	Description	HWQSX Part Number	HWQSX Part QTY Req'd
LMC-FAN120 (08-2118-01)	4-Output Fan Control Module	HQRx-2ANF-yy**	up to 4
LMD-4120 (08-2134-01)	Quad II Dimmer Module	LQSE-4A5-120-D	2
LMD-8120 (08-2108-01)	8 Channel Dimmer Module	LQSE-4A5-120-D	2
LMD-AP8120	Adaptive Phase 8 Channel Dimmer	LQSE-4A5-120-D	2
LMD-IN120 (08-2140-01)	Inverse Phase Dimmer Module	LQSE-4A5-120-D	2
LMD-ELV120 (08-2150-01)	Electronic Dimmer Module	LQSE-4T5-120-D	up to 2 4T5
LMR-8120 (08-2210-01)	High Power Relay Module	LQSE-4S8-120-D*	2
LMI-MAI2 (08-2290-01 DUAL 003)	Maintained Input Module (16 inputs)	QSE-CI-WCI or QSE-IO**	up to 2 WCI or 4 QSE-IO
LMI-MOM2 (08-2290-02 DUAL 002)	Momentary Input Module (16 inputs)	QSE-CI-WCI or QSE-IO**	up to 2 WCI or 4 QSE-IO
LMI-REL2 (08-2235-01 DUAL 001)	Low Voltage Relay Module (16 outputs)	QSE-IO**	up to 4 QSE-IO
08-2208-01	8 Channel Relay Module	LQSE-4S8-120-D* or LQSE-4M-120-D	2 1
08-2200-01	6 Channel Relay Module	LQSE-4S8-120-D*	up to 2
08-2100-01	6 Channel Dimmer Module	LQSE-4A5-120-D	up to 2
LMD-20A120 (08-2125-01)	Dual 20 A Dimmer Module	LQSE-4A5-120-D	2
08-2400-01	Analog Output Module	LQSE-4T5-120-D	2
08-8400-00 & 08-8400-01	6 Load Switching Module	LQSE-4S8-120-D*	2
08-8402-00 & 08-8402-01	6 Load Module, Ports 1 & 2 = Standard Dimming Ports 3 – 6 = Switching	LQSE-4A5-120-D LQSE-4S8-120-D*	1 of each DPM model
08-8404-00 & 08-8404-01	6 Load Module, Ports 1 – 4 = Standard Dimming Ports 5 – 6 = Switching	LQSE-4A5-120-D LQSE-4S8-120-D*	1 of each DPM model
08-8412-00 & 08-8412-01	6 Load Module, Ports 1 – 2 = Memory Dimming Ports 3 – 6 = Switching	LQSE-4A5-120-D LQSE-4S8-120-D*	1 of each DPM model
08-8414-00 & 08-8414-01	6 Load Module, Ports 1 – 4 = Memory Dimming Ports 5 – 6 = Switching	LQSE-4A5-120-D LQSE-4S8-120-D*	1 of each DPM model
08-8420-00	4 Load Module Ports 1 – 4 = 20 amp each, Switching	LQSE-4S8-120-D*	1

* May require power booster for large wattage circuits.

** These devices will need to be relocated outside the Savant/LiteTouch™ enclosure.

Please note the following:

- The suggested HWQSX part quantity shows options for full utilization of the corresponding Savant/LiteTouch™ module outputs. Actual required quantities will vary depending upon the actual input or output count being used.

2.0 Centralized Lighting Panel Retrofit (continued)

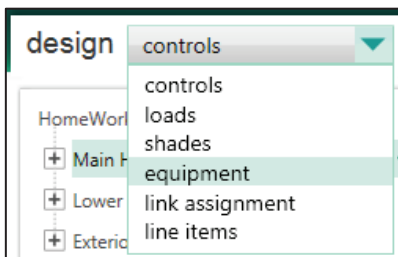
2.3 Savant/LiteTouch™ Dimming and Switching Controls with Recess Mounted Savant/LiteTouch™ Panels

Retrofitting the existing Savant/LiteTouch™ centralized lighting control equipment to HWQSX DIN power modules (DPMs) requires the utilization of the field assembled subplate option, model number HWR-PD-8-120FT. Installation guides can be found at www.lutron.com, offering a complete overview on the installation of the subplate, installation of the DPMs and the wiring.

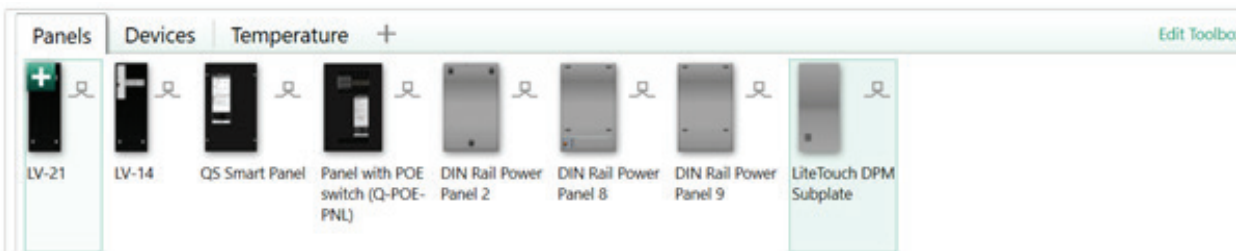
- Each Subplate has the ability to mount up to eight DPMs
- HWQSX Processors cannot be mounted on the subplate assembly and will thus require another panel for mounting (LV14 or LV21)

2.3.1 Adding the Subplate in the Lutron Designer Software (Version 23.3 and newer)

To begin adding the subplate assembly and panel link product first go to **Design > Equipment** in the software.



Proceed to the area of the Area Tree where the Savant/LiteTouch™ Panel with Subplate will reside. Once the area has been clicked and selected, add a LiteTouch™ DPM subplate panel to the space.



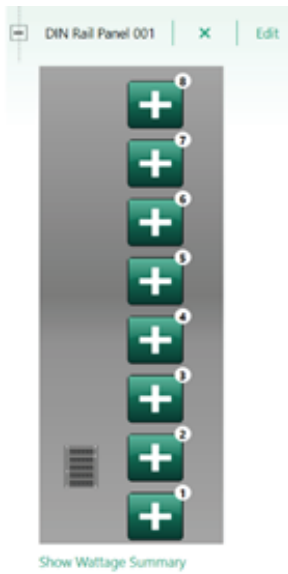
The LiteTouch™ DPM subplate has the ability to house up to 8 DIN Power Modules (DPMs).

Module position may vary as a result of variables such as the available load wire length within the panel. It is typically recommended to start in the lower portion of the panel with module 1 and build upwards from there, similar to the addressing commonly used with a PNL-8 panel, for example.

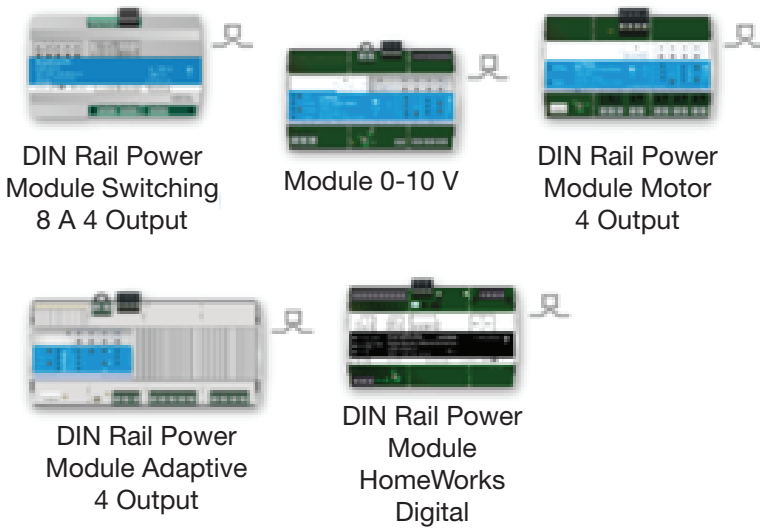
2.0 Centralized Lighting Panel Retrofit (continued)

2.3 Savant/LiteTouch™ Dimming and Switching Controls with Recess Mounted Savant/LiteTouch™ Panels (continued)

2.3.1 Adding the Subplate in the Lutron Designer Software (continued)



Available Components - DIN Rail Modules



3.0 Savant/LiteTouch™ Wired Keypads

Savant/LiteTouch™ recommends 16 AWG (1.5 mm²) four conductor cable for their wired keypad communication wiring. There is no shielding within the cable and the communication wires are not twisted or shielded. HomeWorks wired keypads require 4 conductor wire: one pair 22 AWG (0.34 mm²) twisted/shielded for communication and a pair of 18 AWG (0.75 mm²) (or 12 AWG [2.5 mm²] for longer wire runs) for 24 V_{DC} power and common.

As a result, the existing infrastructure is not recommended for the installation of HomeWorks wired keypads. One of two solutions is recommended:

1. Run new wire to allow for the installation of HomeWorks wired keypads

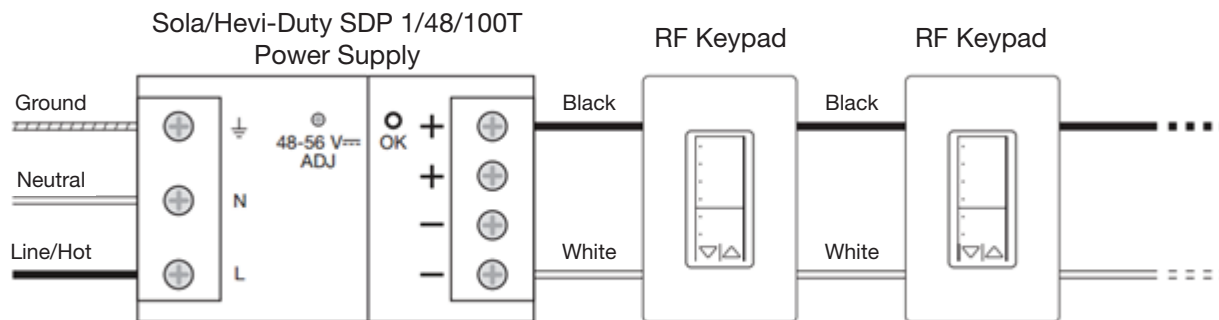
or

2. Install HomeWorks RF seeTouch keypads and power using a low-voltage power supply (see Section 3.1)

3.1 Using an Auxiliary Power Supply to Power HomeWorks RF seeTouch Keypads

The recommended auxiliary power supply for this application is the Sola/Hevi-Duty SDP 1-48-100T power supply. This power supply will output a low voltage DC output that is able to power wall-mounted RF seeTouch keypads. The amount of RF seeTouch keypads that can be powered from a single supply will vary depending on wire length and the cross-sectional area of the wire being used.

3.1.1 Wiring Diagram



Note: GRAFIK T Hybrid and Sunnata RF Keypads are not supported in this application.

3.0 Savant/LiteTouch™ Wired Keypads (continued)

3.1 Using an Auxiliary Power Supply to Power HomeWorks RF seeTouch Keypads (continued)

3.1.2 Maximum Number of Keypads per Supply

The maximum number of RF seeTouch keypads that can be powered from a single supply varies based upon wire run length and the wire gauge.

Wire Gage AWG (mm ²)	Wire Run Length ft (m)	Maximum number of RF seeTouch Keypads
12 to 18 (2.5 to 0.75)	0 to 900 (0 to 274)	20
20 (0.50)	0 to 600 (0 to 183)	20
20 (0.50)	601 to 900 (183 to 274)	16
22 (0.34)	0 to 300 (0 to 91)	20
22 (0.34)	301 to 600 (92 to 183)	15
22 (0.34)	601 to 900 (183 to 274)	10
24 (0.25)	0 to 300 (0 to 91)	19
24 (0.25)	301 to 600 (92 to 183)	9
24 (0.25)	601 to 900 (183 to 274)	6

3.1.3 Installation

The steps for installing this solution are as follows:

1. Remove the fuse or lock the breaker in the OFF position.
2. Install the SDP 1-48-100T power supply in accordance with the manufacturer's instructions.
3. Wire the black wires of the RF seeTouch keypad(s) to the "+" terminal of the SDP 1-48-100T power supply.
4. Wire the white wires of the RF seeTouch keypad(s) to the "-" terminal of the SDP 1-48-100T power supply.
5. Turn on the breaker to the SDP 1-48-100T power supply.
6. Ensure that the "OK" LED is lit on the SDP 1-48-100T power supply.
7. On the SDP 1-48-100T power supply, turn the 48-56 V ADJ screw clockwise to the maximum output voltage.
8. Verify that all attached keypads are powered.

4.0 Warranty

Lutron's standard warranty policy for HomeWorks products is applicable only when following the exact installation recommendations. Failure to do so will result in a void in warranty coverage. Lutron's warranty is valid only when installing the entire Lutron system as recommended. Replacement of all existing Savant/LiteTouch™ power modules AND keypads are required for warranty coverage.

5.0 Appendix – Importance of Product Standards and UL Listing

The National Electric Code® (NEC), or NFPA® 70, is a regionally adopted standard which aims for safe installation and wiring of electrical equipment. Underwriters Laboratories (UL) is an independent global standards company focused on safety science. Compliance with both of these standards ensures safe installation of electrical and electronic equipment within residential spaces.

A listing with UL is important because it indicates to the installer and consumer that UL has received samples of the product and conducted testing, proving that the product meets UL's requirements.

As is the case with all electrical products, it is important to meet the regionally accepted NEC which will direct the installer to follow the manufacturer's instructions for the listed product being installed, thus directing the installer to install products and solutions which have been listed via a standards agency such as UL. It is important to follow the guidelines detailed in this application note and the instruction sheet for the subplate solution to ensure compliance to the UL Listing and subsequently the locally adopted code, ensuring a safe, high quality, and high-performance solution.

2014 NEC Article 110.3(B) reads: "Listed or Labeled equipment shall be installed and used in accordance with any instructions included in the Listing or Labeling."

Looking back over 20 years, 1993 NEC Article 110.3(B) is essentially the same: "Installation and Use. Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling."

Lutron's LiteTouch™ Retrofit solution allows the installer to maintain compliance with UL and NEC with a simple solution that can be implemented into any LiteTouch™ Installation regardless of whether the existing LiteTouch™ enclosures are newer (with pop-rivet fixed barriers) or older (with welded fixed barriers) and utilizing the existing infrastructure.

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