Wattstopper®

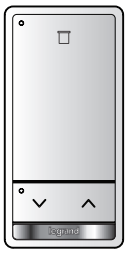
DLM-based Low Voltage Shade Switches

No: 32004 – 06/25 rev. 3

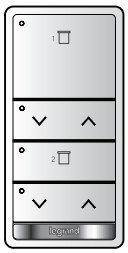
Installation Instructions • Instructions d'Installation • Instrucciones de Instalación

Catalog Numbers • Les Numéros de Catalogue • Los Números de Catálogo:
LMSH-SW211, LMSH-SW222, LMSH-SW241

Country of Origin: Made in China • Pays d'origine: Fabriqué en Chine • País de origen: Hecho en China



LMSH-SW211



LMSH-SW222

LMSH-SW241

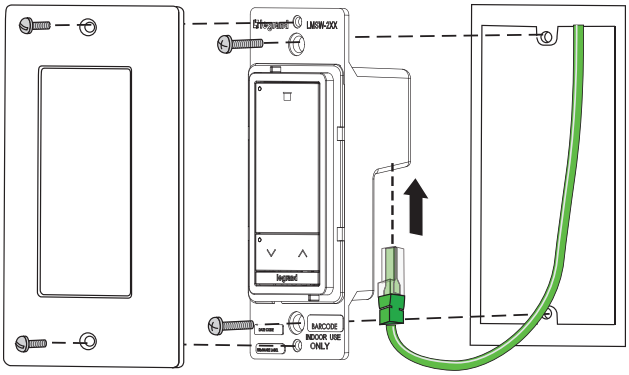
This unit is pre-set for Plug n' Go™ operation, adjustment is optional.

Installation shall be in accordance with all applicable regulations, local and NEC codes. Wire connections shall be rated suitable for the wire size (lead and building wiring) employed.
For Class 2 DLM devices and device wiring: To be connected to a Class 2 power source only. Do not reclassify and install as Class 1, or Power and Lighting Wiring.

SPECIFICATIONS

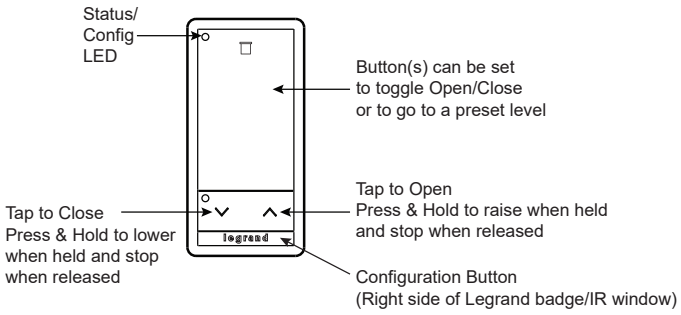
Voltage 24VDC
Current Consumption 5mA
Power Supply: ..... Legrand Shade Controller (LMSH-PS610/602)
Connection to the DLM Local Network..... 2 RJ-45 ports
DLM Local Network (IRB) characteristics:
Low voltage power provided over Cat 5e cable (LMRJ).
Max current: 800mA. Max total cable: 1000' Cable added per device: 150'.
Max loads: 64. Max communicating devices: 24 if all power supplies are 10X-Series, 48 otherwise. Max 10X-Series power supplies: 5.
Environment ..... For Indoor Use Only
Operating Temperature ..... 32° to 131°F (0° to 55°C)
Storage Temperature ..... 23° to 176°F (-5° to 80°C)
Relative Humidity ..... 5 to 95% (non condensing)

MOUNTING THE SWITCH



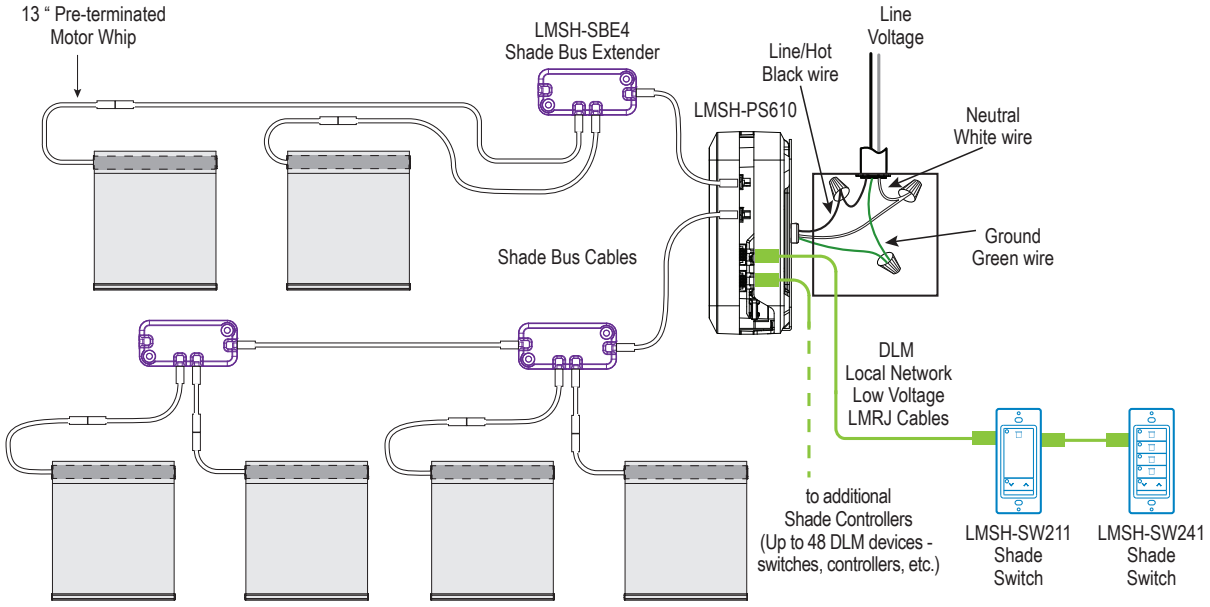
WARNING: Do not install to cover a junction box having Class 1, 3 or Power and Lighting Circuits.

BUTTONS AND INDICATORS



CONNECTIVITY

The illustrations below show examples of free-topology wiring. The LMSW switches communicate to all DLM Shading devices connected to the low voltage DLM Local Network, regardless of their position on the DLM Local Network.



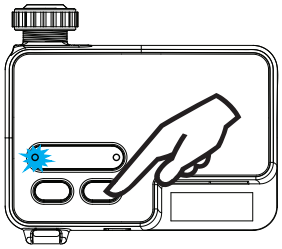
PLUG N' GO (PNG) BUTTON OPERATION

Three different shade switches are offered in the 2xx family. The LMSH-SW211 and LMSH-SW241 are recommended for single zone or single fabric applications. The LMSH-SW222 is recommended for dual shade applications where one shade is a Blackout shade. They can also be used for dual zone applications, but will require using the LMSH-CR or LMCS software to edit the default PnG parameter values.

When connected to an LMSH-PS602 or LMSH-PS610, the switches will be will automatically configured for default operation depending on the type of shade fabric that was ordered and the type of installed switches. During testing, the factory will assign a value to the shade motor indicating the opacity of the installed shade fabric. This will be used to determine the shade button assignments.

By using Push n' Learn (described later in this document) or the LMSH-CR configuration tool, you can assign individual buttons to control one or more specific shades

Shade Control toggle



See the configuration charts on the following pages to understand how default PnG will configure the switches on the project. For testing purposes, you can control the shades by pressing the shade control button on the LMSH-PS602 or LMSH-PS610, as shown in the diagram.

Press and hold the button to ramp shade up or down. Release to stop shade and press again to reverse direction.

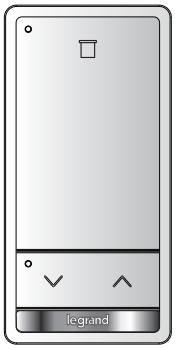
If you press and release immediately, shade will toggle between moving to the upper and lower limit.

NOTE: The engraving shown below is standard on all models and corresponds with default PnG behaviors. If custom engraving is used, the switches may require programming to match the engraved behavior.

LMSH-SW211

Ideal Application:

- For spaces with only one type of shade
- When only basic raise lower functionality is required



Single or Dual Shade Types

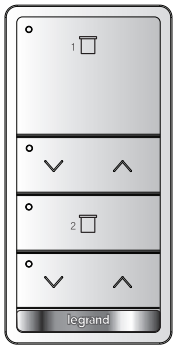
Function	PnG Binding	Default Tap	Default Hold
Button	All Shades	Open/Stop/Close/Stop	Toggle Ramp*
Rocker Up	All Shades	Open/Stop	Raise
Rocker Down	All Shades	Close/Stop	Lower

*Toggle Ramp – Pressing and holding the button will raise or lower the shade. The first time you hold the buttton, the shade will raise gradually, stopping when you release the button (just like a rocker). Subsequent holds of the button will reverse the ramp direction of the previous hold.

LMSH-SW222

Ideal Applications:

- Recommended for Dual Shade applications, where one shade is a Blackout shade.



Dual Shade Type

Function	PnG Binding	Default Tap	Default Hold
Button 1	Sheer Shades	Open/Stop/Close/Stop	Toggle Ramp*
Rocker Up	Sheer Shades	Open/Stop	Raise
Rocker Down	Sheer Shades	Close/Stop	Lower
Button 2	Blackout Shades	Open/Stop/Close/Stop	Toggle Ramp*
Rocker Up	Blackout Shades	Open/Stop	Raise
Rocker Down	Blackout Shades	Close/Stop	Lower

*Toggle Ramp – Pressing and holding the button will raise or lower the shade. The first time you hold the button, the shade will raise gradually, stopping when you release the button (just like a rocker). Subsequent holds of the button will reverse the ramp direction of the previous hold.

Single Shade Type

For rooms with a single shade type (for example, two zones of sheer shade control), button and rocker functionality will be the same as in the table above, but button/rocker 1 will default binding to shade load 1 and button/rocker 2 will default binding to all remaining shade loads. To adjust bindings, see Button Binding Adjustment - Push N' Learn (PNL) below.

LMSH-SW241

Ideal Applications:

- Single Zone with presets

Single or Dual Shade Types

Function	PnG Binding	Default Tap	Default Hold
Button 1	All Shades	Send to 80% (High)	**Save Level
Button 2	All Shades	Send to 60% (Mid)	**Save Level
Button 3	All Shades	Send to 40% (Mid)	**Save Level
Button 4	All Shades	Send to 20% (Low)	**Save Level
Rocker Up	All Shades	Open/Stop	Raise
Rocker Down	All Shades	Close/Stop	Lower

** Adjust shades to desired level using rockers, then hold button for 5 seconds to save the levels.

SHADE LIMIT ADJUSTMENT – PULL N' SAVE (PNS)

Use this process to reset the upper and lower shade limits. The initial PnG process will set a default upper and lower limit that can be adjusted using the PnS process.

There are three different methods you can use:

- The first method is useful for setting the upper and/or lower limit for one shade. (You can also set the limits for multiple shades but must set each shade one at a time.) This method also allows you to use the buttons on the switch in addition to pulling on the shade to adjust the limits.
- The second method allows you to group several shades together. You set the upper and/or lower limits for a single shade and it will be copied to the other shades in the group. This method is intended for use when shades are the same size and have the same motor ratio.
- The third method can be used when setting the lower limit for multiple shades at the same time, and is intended for use when the shades are different sizes, made of different materials, or have different motor ratios. Only the lower limit can be set with this method—the upper limit will remain at the default for each shade.

Entering Pull n' Save:

No matter which method you use, you must first enter Pull n' Save

1. Press and hold the Config button on a switch for seven seconds to enter PnS. You can also enter PnS by using the LMSH-CR configuration tool. The red configuration LED on all shade devices will initially blink fast (two times per second) and then start blinking slower after the seven seconds (one time per second).
2. Once you release the Config button, all blue switch LEDs will blink several times, then the LEDs for all rockers remain on and the button LEDs will turn off. Additionally, all shades will move to 50% open/close.

Method 1 – Set the Upper and/or Lower Limit for Single/Multiple Shades:

1. Once you have entered PnS, press and release the Config button again. The **currently active shade** will jog up and down a few times. Each time you press the Config button a different shade becomes active and will jog. Once you have selected the desired shade, proceed to the next step.
2. **To change the Upper Limit,** tap any **up-arrow** rocker **twice** on an active switch to select the upper limit mode. The selected shade raises to fully open position (100% to bracket hard stop).

   NOTE: If you want the upper limit on the currently active shade to be 100% open, you do not have to use this procedure. That limit is already set during the PnG process. Use this process to change from the initial PnG setting.
3. Manually pull the shade to the desired upper limit. Or, **press and hold** the appropriate rocker to adjust the upper limit down or up. Release to stop the shade movement. For more precise adjustment, **tap** on the rocker to move the shade a small amount.

   NOTE: Tapping twice quickly is used to save the setting or switch between upper and lower limits, so if tapping to adjust the limit, **be sure to pause slightly before tapping the same button twice.**
4. Once the desired limit is set, tap the **up-arrow** rocker **twice quickly** to save that position. The shade returns to 50% open/close to indicate that the upper limit has been saved.

   NOTE: If you tap twice quickly on lower button/rocker before saving the upper limit, the shade will exit the upper limit setting without saving and switch to setting the lower limit.
5. **To change the Lower Limit,** repeat steps 2 through 4, this time double tapping any **down-arrow** rocker instead of an up-arrow one to both adjust and save the limit. The shade will move to the fully closed position when you enter first enter lower limit adjustment.
6. If additional shades need to be set, press and release the Config button again until the desired shade jogs, then repeat the previous steps.
7. Once all shades have been adjusted, exit PnS by pressing and holding the config button on the switch until the red LED turns off, approximately three seconds. All shades go to the upper limit.

Method 2 – Set the Upper and/or Lower Limit for Multiple Shades When Shades Are The Same:

NOTE: To use this method all shades being grouped together **must** use the same shade motor gear ratio (either 40:1 or 73:1)

1. Once you have entered PnS, pull each shade that you want to group together. The last shade that you pull will become the active shade that you adjust.
2. Follow steps 2 through 5 from Method 1 to adjust the upper and/or lower limits for the active shade. Only the active shade will move when pressing the buttons.
3. Once you have set the desired limit(s) and saved, exit PnS by pressing and holding the config button on the switch until the red LED turns off, approximately three seconds. All shades go to the upper limit. Now, when pressing the up or down button/rocker all shades in this group will go to the same limit.

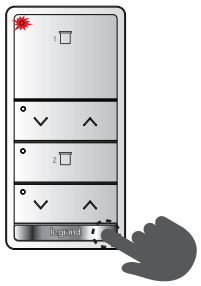
Method 3 – Set the Lower Limit for Multiple Shades When Shades Are Different:

1. Manually pull each shade to the desired limit. If you do not pull a shade, it will remain at its default lower limit.

   NOTE: Be careful not to pull past the desired limit. If you do, then you can raise it only by manually turning the tube with the motor. The buttons cannot be used to adjust the limit with this method.
2. Press and hold any **down-arrow** rocker for five seconds. All shades will return to 50% open/close to indicate that the limits have been saved.
3. Exit PnS by pressing and holding the config button on the switch until the red LED turns off, approximately three seconds. All shades go to the upper limit.

BUTTON BINDING ADJUSTMENT - PUSH N' LEARN (PNL)

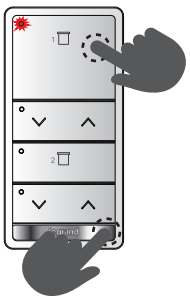
A configuration button allows access to our patented Push n' Learn™ technology to change the binding relationship between switch buttons and shades.



Step 1 Unlock Configuration Button

1. The configuration button will lock after any of the following events:
   - PnG lock command transmitted (occurs upon PnL exit)
   - After twelve hours of being unlocked (first boot or a manual unlock)
   - The button is manually locked (as described in Step 5).

   To check if it is unlocked, press the configuration button on the right-side of the Legrand badge. If the top button LED flashes red, the configuration button is unlocked. Skip to Step 2 – Enter Push n' Learn.



2. If the top button LED did not flash red, the configuration button is locked. Press-and-hold the configuration button and the top-most button on the switch simultaneously until the top button LED flashes red (approximately 3 seconds). This signals that the configuration button is unlocked.

Step 2 Enter Push n' Learn

1. Press and hold **only** the configuration button for 3 seconds, until the Red LED on the switch begins to blink.
2. When you release the switch's configuration button, the red LED on other communicating DLM Local Network devices begins to blink.
3. The DLM Local Network is now in PnL mode. The Red LEDs continue to blink until you exit PnL mode.
4. All shades in the room go to 80% (open) after entering PnL, except for Shade #1 which will move to 60%.

Default bindings are described in the previous section. The white LED will be ON for all switch buttons that are bound to this shade.

NOTE: Shade order is determined by the system based on motor serial numbers. Installers should note the location and number of the shade for future programming or troubleshooting.

NOTE: For the top button, since it is blinking red while in PnL, the LED for that button will alternate between Red and White if the button is bound to the load or Red and Off if the button is not bound to the load.

Step 3 Shade Selection

1. Press and release the configuration button to step through the shades connected to the DLM Local Network. As each shade goes to 50% note which switch buttons are showing the White LED. These buttons are currently bound to the shade at the 50% level.
2. To unbind a switch button from a shade, press the switch button while its White LED is ON. The White LED turns OFF to indicate the button no longer controls the shade that is currently at the 50% level.
3. Pressing the switch button again while the shade load is at 50% rebinds the shade load to the button and the White LED illuminates.

NOTE: If you are trying to bind a specific shade and don't want to step through selecting each one ,instead of pressing and releasing the configuration button, you can tug on the specific shade you want to bind and it will become the active shade.

Step 4 Exit Push n' Learn

1. Press and hold the configuration button until the red LED turns off, approximately 3 seconds.

Step 5 Lock Configuration Button (Optional)

If the configuration button is unlocked and you wish to manually lock it, press-and-hold both the configuration button and the top-most button on the switch simultaneously until the top button LED lights red (approximately 3 seconds).

TROUBLESHOOTING

LEDs on a shade switch or motorized shade don't light	1. Check to see that the device is connected to the DLM Local Network. 2. Check for 24/36VDC input to the device: Plug in a different DLM device at the device location. If the device does not power up, 24/36VDC is not present. The LMSH-602 provides 24V input. The LMSH-PS610 provides 36V input. • Check the high voltage connections to the shade controller. • If high voltage connections are good and high voltage is present, recheck DLM Local Network connections between the device and the room controller(s).
LEDs turn ON and OFF but shade doesn't move	1. Make sure the DLM local network is not in PnL or PnS programming mode. 2. Check shade bus connections between shade controller and DLM motorized shades.

WARRANTY INFORMATION

Limited Lifetime Warranty
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