



Configuration Instructions for PMMI Lighting LLC's LED, Low Voltage Lighting System

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Notes and Procedures

Lighting Systems designed and developed by PMMI Lighting LLC operate through accessing a Configuration File. This file is located on a USB flash drive, which is plugged into the Raspberry Pi computer located on the PMMI Lighting HUB. The configuration file contains a sequence of commands written in a language specific to PMMI Lighting's System. It provides software instructions to the PMMI Lighting Controller. A Microsoft Excel spreadsheet is provided to complete this process.

If you are ready to customize your system, take the USB flash drive out of your system and copy the excel spreadsheet onto your computer. The file to copy will be the file that ends in .xlsm. While you are working on the customization, plug the USB flash drive back into your system so it will continue to work as you are modifying the spreadsheet. Anytime you plug the flash drive into the system, please reboot the system. To do this, power it down and back up again.

Before changing your excel spreadsheet do a save as, and rename the new file, adding a version number at the end. This will allow you to retain the original, in case you need to reference it later.

The Excel spreadsheet is comprised of multiple tabs (sheets) used to define various aspects of the installation. When filling information in the excel spreadsheet, **NEVER** copy and paste as that can corrupt the file. Note also that fields in the spreadsheet to be populated manually are highlighted in light grey. Other fields that are automatically populated will receive an error if entry is attempted. Tabbed sheets are:

- **General Tab** – name and location of the installation. There is also a macro button on this sheet used to create the configuration file once all tabbed sheets are filled out.
- **Channels Tab** – identification of each **physical** Channel in the installation using information pulled directly from the Cabling Plan. It also supports the specification of a maximum intensity for each channel.
- **Areas Tab** – identification of named Areas as collections of Channels. For example, a switch can access and control one or more Areas.
- **Scenes Tab** – identification of named Scenes as collections of Areas, where each Area can be illuminated at a different illumination level from 0 to 100%. Scenes represent the secondary identification of things that are controlled by the controller. For example, a switch can be used to trigger a Scene.
- **Switches Tab** – like channels, information on the Switches tab is pulled directly from the Cabling Plan. It serves to instruct the controller about how switches are connected through switch daisy chains and what they should control and how they should control it. (e.g. toggle, dimmer, etc.).

- **Events Tab** – identification of named Events that will automatically execute at specific times.
- **Triggers Tab** – like Channels and Switches, information on the Triggers tab is pulled directly from the Cabling plan. It serves to instruct the controller about motion detectors, which cables they are attached to, and what action to take when a trigger is detected.

General Tab

Controller General Information

This General Information is setup at the factory. Included for information purposes only.

- Installation name and location are specified here (only 40 characters can be used).
- The latitude and longitude should closely represent the lat/long coordinates of the installation.
- These are used to calculate the time of sunrise and sunset, which can be used in timed Events.
- Latitude is a number from 90.0 to negative 90.0, where positive numbers represent latitudes north of the equator.
- Longitude is from 180.0 to negative 180.0 where positive numbers are east of the zero meridian and negative numbers are west.

Create Config File Button

- This is used to automatically create the configuration file from spreadsheet contents,
- Will be addressed later as this is used after all the tabs are filled out.

A	B	C	D	E	F	G	H
Controller General Information							
	Installation Name	PMMI Demo					
	Installation Latitude	29.684722					
	Installation Longitude	-95.410707					

Create Config File



Channels Tab

This is a list of each **physical** Channel in the installation. This information serves to instruct the controller on the physical channel layout.

The Channel Numbers in the left column represent the physical Channel Numbers labeled on Channel fixture cables that home run to the Control Panel.

The Max Level field allows a maximum intensity for that Channel from 0 to 100% to be set. The default is 100% if nothing is input. It is recommended that the default be used for initial configuration. If a space is too bright, this can be changed to reduce the max light level for that space.

#	Indicator	Channel Name	Max Level (default 100)	Notes
C1	<input type="checkbox"/>	Foyer	90	
C2	<input type="checkbox"/>	Living Room Low Level		
C3	<input type="checkbox"/>	Living Room High Level		
C4	<input type="checkbox"/>	Dining Room		
C5	<input type="checkbox"/>	Mud Room		
C6	<input checked="" type="checkbox"/>	Mechanical Room		
C7	<input type="checkbox"/>	Scrapbook Room		
C8	<input type="checkbox"/>	Scrapbook Room Closet		
C9	<input type="checkbox"/>	Half Bath	90	
C10	<input type="checkbox"/>	Guest Bedroom		
C11	<input type="checkbox"/>	Guest Bedroom Closet		
C12	<input type="checkbox"/>	Master Bedroom Low Level	80	
C13	<input type="checkbox"/>	Master Bedroom High Level	80	
C14	<input type="checkbox"/>	Master Bedroom Closet		
C15	<input type="checkbox"/>	Laundry		
C16	<input type="checkbox"/>			
C17	<input type="checkbox"/>			

Notice the Mechanical Room has a check in the Indicator column, this can be checked to be any room or number of rooms. The channel indicated will blink:

- One time when the system is ready after a reboot
- Three times when vacation mode is turned on
- Twice when vacation mode is turned off

Areas Tab

Using Channel numbers identified on the Channels Tab, create Area names to identify physical spaces in the facility where such spaces may be controlled as a group. When entering Channel numbers, only enter the integer value (1, 2, 3, etc.) as the “C” designation is automatically added by Excel.

Each named Area can contain as few as one Channel, and as many as all defined Channels.

#	Display Order	Area Name	Channel Numbers Associated with Area						
A1	1	Foyer	C1						
A2	2	Main Living Area	C1	C2	C3	C4			
A3	3	Living Room	C2	C3					
A4	4	Dining Room	C4						
A5	5	Mud Room	C5						
A6	6	Scrapbook Room	C7						
A7	7	Half Bath	C9						
A8	8	Mechanical Room	C6						
A9	9	Kitchen Ceiling	C15						
A10	10	Kitchen Under Cabinet	C16						
A11	11	Kitchen Over Cabinet	C17						

Scenes Tab

This sheet identifies Scenes using the Area numbers. Each Area is given an illumination level.

Scenes can be triggered with either a switch or through a timed event.

#	Vac. Events On	Vac. Events Off	Scene Name	Area Numbers & Light Level							
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Away	A1	5%	A2	30%				
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Home	A1	80%	A2	50%	A9	80%	A10	50%
3	<input type="checkbox"/>	<input type="checkbox"/>	Good Morning	A9	20%	A10	50%	A11	50%		
4	<input type="checkbox"/>	<input type="checkbox"/>	Movie Time	A10	50%	A11	50%	A3	10%	A9	10%
5	<input type="checkbox"/>	<input type="checkbox"/>	Outside Fence Lights	A22	60%	A23	60%				
6	<input type="checkbox"/>	<input type="checkbox"/>	Soffit On	A20	10%	A21	10%				

Switches Tab

The Switches tab is used to instruct the controller on which switches are physically attached to switch daisy chains. The Control Type is used to specify the behavior of a switch. A pull-down menu is available in Control Type.

Brd #	Pos #	Cable #	Wire #	Seq Port #	Control Type	Transition (ms)	Area Numbers				Scene Numbers	Delay (Sec)
B1	P1	1	W1	SW1	SCENE						S1	
			W2	SW2	SCENE						S2	
			W3	SW3	SCENE						S3	
			W4	SW4	DIMMER		A2					
			W5	SW5	<div> <div>✓</div> <div>DIMMER</div> <div>ON</div> <div>OFF</div> <div>TOGGLE</div> <div>SOFT_ON</div> <div>SOFT_OFF</div> <div>SOFT_TOGGLE</div> <div>SCENE</div> <div>SCENE_TOGGLE</div> <div>SCENE_DELAY</div> </div>							
			W6	SW6								
			W7	SW7								
B1	P2	2	W1	SW8			A9	A10	A11			
			W2	SW9			A9					
			W3	SW10			A10					
			W4	SW11			A11					
			W5	SW12			A5					
			W6	SW13								
			W7	SW14								
			W1	SW15								

General

Channels

Areas

Scenes

Switches

Events

Triggers

- **DIMMER** – Switch behaves like a momentary on/off toggle and as a dimmer. If the button is pressed and released quickly, Areas specified toggle on or off. If the button is pressed and held, Areas will either dim up or down depending on the initial state. If lights were off, they will ramp up. If lights were on, they will dim down. The dimming rate is set so that the full range (0 to 100%) is achieved in five seconds.
- **ON** – Switch instantly toggles fixtures in the specified Areas ON.
- **OFF** – Switch instantly toggles fixtures in the specified Areas OFF.
- **SOFT_ON** – Switch toggles fixtures in the specified Areas ON, ramping to full illumination over 1/2 second, this is default. Transition times up to 5 seconds can be specified.
- **SOFT_OFF** – Switch toggles fixtures in the specified Areas OFF, dimming to 0% illumination over 1/2 second. Transition times up to 5 seconds can be specified.
- **SOFT_TOGGLE** – Switch toggles fixtures in the specified Areas ON or OFF depending on present state, ramping to full or zero illumination over 1/2 second.
- **SCENE** – Switch triggers one or more Scenes rather than Areas. Scenes are defined on the Scenes Tab. If Scene is selected for Control Type, columns under Area Numbers are hidden, and columns under Scene Numbers are shown available.

Brd #	Pos #	Cable #	Wire #	Seq Port #	Control Type	Transition (ms)	Area Numbers			Scene Numbers	Delay (Sec)	# Buttons	Jumper	Location	# Buttons	Jumper	Location
B1	P1	1	W1	SW1	SCENE					S1			Auto	B1 Scenes Away B2 Scene Home B3 Scene Good Morning B4 Main Living Room			
			W2	SW2	SCENE					S2			Auto				
			W3	SW3	SCENE					S3			Auto				
			W4	SW4	DIMMER		A2						Auto				
			W5	SW5													
			W6	SW6													
			W7	SW7													
B1	P2	2	W1	SW8	DIMMER		A9	A10	A11				Auto	B1 Kitchen All B2 Kitchen Ceiling B3 Kitch Under Cabinet B4 Kitch Over Cabinet			Mud Room
			W2	SW9	DIMMER		A9						Auto				
			W3	SW10	DIMMER		A10						Auto				
			W4	SW11	DIMMER		A11						Auto				
			W5	SW12	DIMMER		A5								1-5		
			W6	SW13													
			W7	SW14													

For all Control Types except Scene, one or more Areas can be associated with the switch. If Control Type is Scene, one or more Scenes can be set to trigger when the switch is pressed.

Events Tab

The Events tab is used to setup actions that occur automatically and at specific times and intervals. Event times can be a specific time of day based on a 24 hour clock 00:00:00 (midnight) to 23:59:59, or can be tied to sunrise or sunset. Like a switch, an event can control one or more Areas, or can trigger one or more Scenes.

For Event Type, Day, and Control Type, pull-down menus present options. Options for Event Type are “Sunrise”, “Sunset”, and “Timed”. If Sunrise or Sunset are chosen, an optional “Offset” can be selected. In the example below, “Soffit On” will trigger at sunset everyday.

Using options under “Day”, the event can be set to trigger “Today”, “Once”, or at recurring intervals “Everyday”, “Weekdays”, “Weekend”, or a specific day of the week. Most popular settings are “Everyday”, “Weekday” and “Weekend”.

#	Vacation	Event Name	Event Type	Offset (min)	Day	Time (hh:mm:ss)	Control Type	Transition (ms)	Area Numbers			Scene #
E1		Soffits on	Sunset		Everyday		ON		A20	A21		
E2		Soffits off	Sunrise		Everyday		OFF		A20	A21		
E3		Outside Fence Lights on	Sunset		Everyday		SCENE					S5
E4		Outside Fence Lights off	Timed		Everyday	23:00:00	OFF		A22	A23		
E5												
E6												
E7												
E8												
E9												
E10												
E11												
E12												
E13												
E14												
E15												
E16												
E17												
E18												
E19												
E20												

Triggers Tab

The Triggers tab is used to instruct the controller about which motion detectors are physically attached to motion ports on Motion Reader boards.

At this time, the motion detectors that are shipping from PMMI Lighting, LLC are Relay Type NC (normally closed).

When motion is detected, two events are scheduled to occur — one immediately and another some number of seconds in future. “Delay” specifies the number of seconds (from 0 to ∞) between the immediate action and the delayed action. Typically, the immediate action is to turn lights in an Area ON and the delayed action is to turn them OFF. Transition time can be set for “SOFT” actions (default transition time is 1/2 second).

If during the interval between the immediate and delayed actions motion is detected again, the delayed-action time is reset. The delayed action will only occur after motion has ceased.

The following example turns Laundry and Mudroom lights on immediately, and then turns them off five minutes (300 seconds) after motion has stopped.

#	Trigger Name	Port #	Relay Type	Detection Time of Day		Immediate Action	Delay (sec)	Delayed Action	Transition (ms)	Area Numbers				Scene Numbers
				Start (hh:mm:ss)	Stop (hh:mm:ss)									
T1	Laundry	1	NC	0:00:00	23:59:59	ON	300	OFF		A12				
T2	Mudroom	2	NC	0:00:00	23:59:59	ON	300	ON		A5				
T3				0:00:00	23:59:59			OFF						
T4				0:00:00	23:59:59			SOFT_ON						
T5				0:00:00	23:59:59			SOFT_OFF						
T6				0:00:00	23:59:59			SCENE						

Configuration File – Creation and Installation

Once information in the tabbed sheets discussed previously are populated, the Configuration File can be created.

A	B	C	D	E	F	G	H
Controller General Information							
Installation Name		PMMI Demo					
Installation Latitude		29.684722					
Installation Longitude		-95.410707					
		Create Config File					

General		Channels	Areas	Scenes	Switches	Events	Triggers	+

On a PC running Windows 7 or later:

1. Go to the “General” tab on the configuration spreadsheet.
2. Click on the button labeled “Create Config File”.
3. This will automatically create the configuration file used by the PMMI Lighting Controller to run the system.
4. Select to save this new file.
5. Save it in the same place you have stored your excel spreadsheet while working on your new configurations.
6. Click OK and the new configuration file will be saved on your hard drive.
7. Power down your lighting system.
8. Remove the flash drive from your PMMI Lighting HUB located in the Lighting Control Panel.
9. Plug the USB drive into the PC that has the excel spread sheet and .txt file on it.
10. Note the drive (e.g. H:\) is assigned to the USB drive.
11. Copy the excel spreadsheet and the new config file “pmmi_cfg.txt” to the USB drive.
12. It will ask you if you want to write over the “pmmi_cfg.txt” file on the USB drive.
13. Say Yes, as this is the file that the system reads to run your system. You can only have one on the USB drive at a time.
14. Remove the USB drive from the PC, plug it back into the PMMI Lighting HUB.
15. Power up the PMMI Lighting System.
16. The system will take up to a minute to boot and then the new configuration is loaded.
17. The area that has been specified with the “Indicator” check mark with flash once when the system is booted and ready.

Please call or email to set up an appointment for one-on-one training to customize your system.