



PSW4033 Software Users Guide Version 2 Draft 26 Feb. 2004



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1 Software functions.

The following section is describing the software function profiles implemented in the Lonbox® Intelligent Operating panel model PSW4033.

The PSW4033 is designed to fulfil the requirement for controlling lighting, sunblind and ventilation in modern Intelligent Building Installations, using the LonWorks® network standard ANSI/EIA/CEN 709.1. The unit has 6 channels with each a switch. The switches can be combined into a single block with ON and OFF on each side on the block or a block can be used separately switches in dual mode. Beside of the unit can be used as a scene panel with 6 scenes and it also has 2 embed scene controllers. The unit has 3 light indicators which can be used for control signalling to the user operating the . The firmware makes use of user defined configuration properties, and should be installed with standard Lonbox resource file version 1.15 or higher. Note that this version requires LonMark Standard Resource files version 12 or higher in your LonMaker.

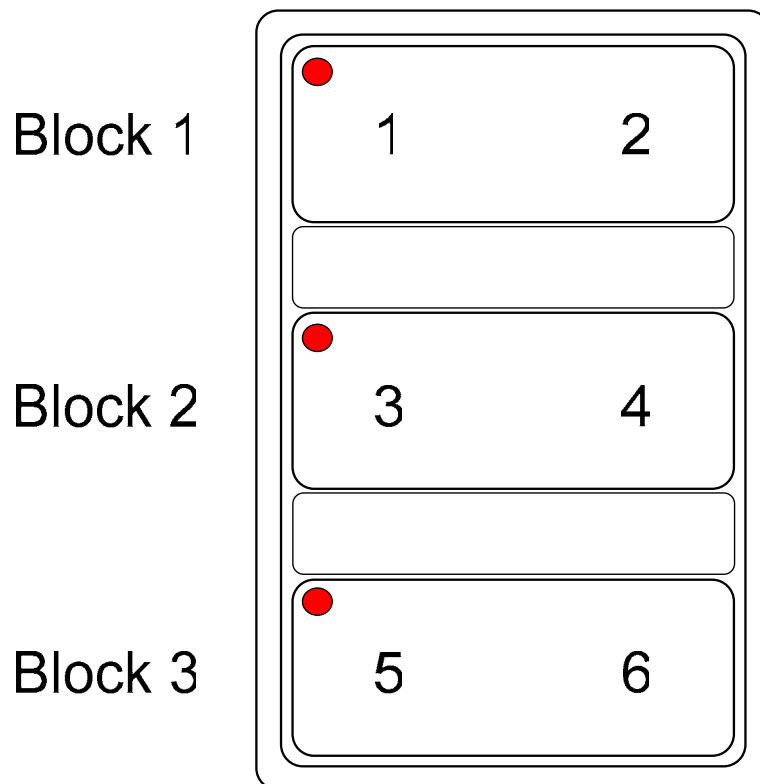


Figure 1 The main application for PSW4033

1.1 Software function overview

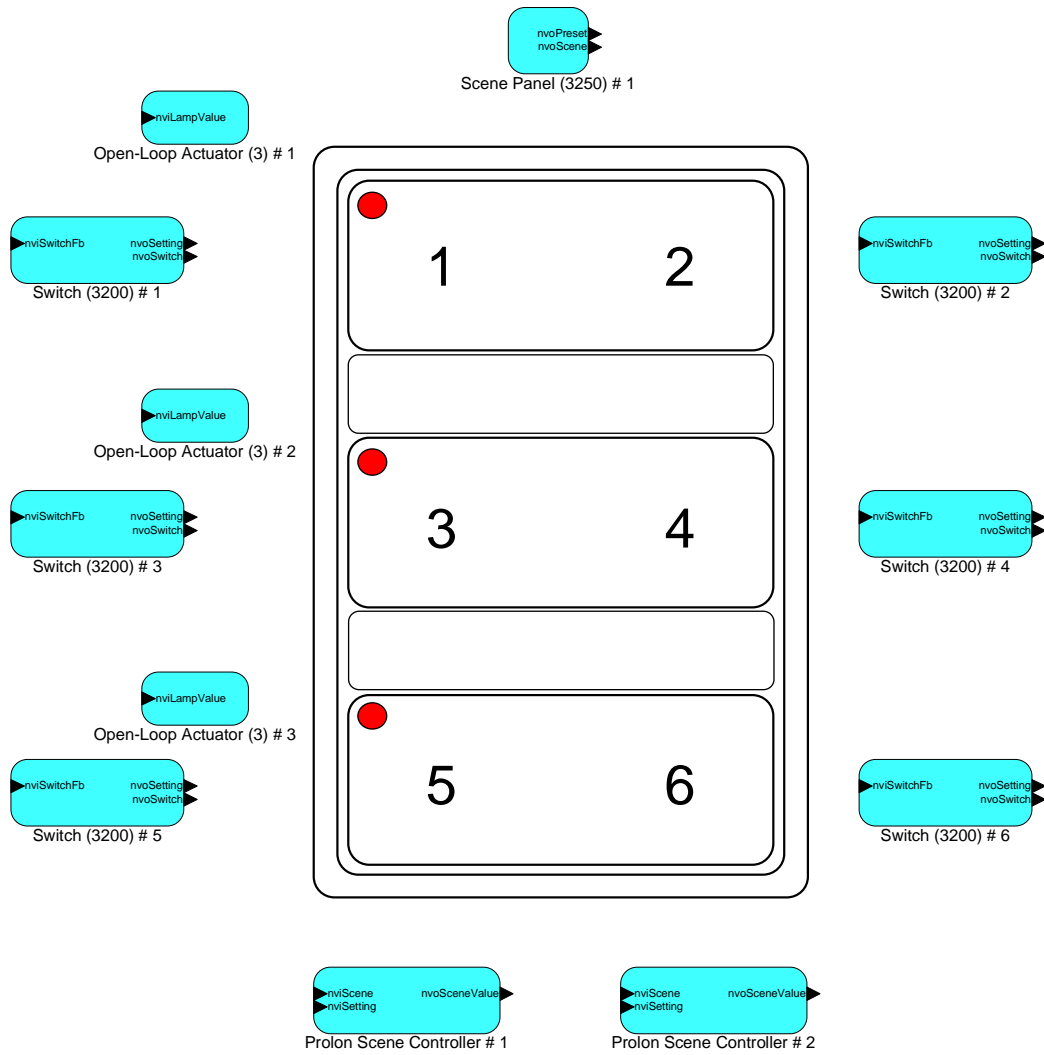


Figure 2 Software overview for the Lonbox PSW4033



1.2 Software function profiles:

The following is describing the software functions implemented in the Lonbox® Intelligent Operating Panel model PSW4033.

1.2.1 Scene Controller, 2 objects

TO DO

1.2.2 Scene panel, 1 object

TO DO

1.2.3 Open loop actuator, 3 objects

TODO

1.2.4 Switch (3200), 6 objects

The following describes the function for the switch object. This object is used with the hardware switch built in to the plastic. The switch object is used to detect if the hardware switch is shorted or open and hereafter to send out a variable to an actuator or control object. The output from the switch object is typically connected to a lamp actuator object or other objects using at switch value for ON or OFF purposes. The switch object also has a setting output variable, normally used as a control output to turn ON or OFF a controller functions or to change set points. The setting output can also be used in sunblind and ventilation systems.

Hereunder is the relation between the built switches in the plastic and the software object.

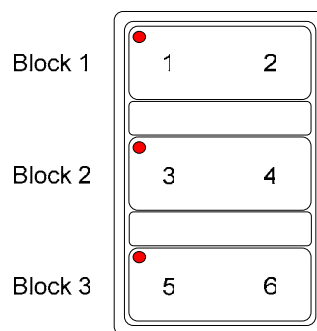


Figure 3 The switch numbers

Switch #	Object name in LonMaker	Object used in type	Block #
1	Switch[0]	Single and Dual	1
2	Switch[1]	Only in dual	1
3	Switch[2]	Single and Dual	2
4	Switch[3]	Only in dual	2
5	Switch[4]	Single and Dual	3
6	Switch[5]	Only in dual	3

Figure 4 The switch hardware/software relation

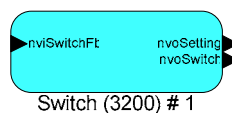


Figure 5 The switch object

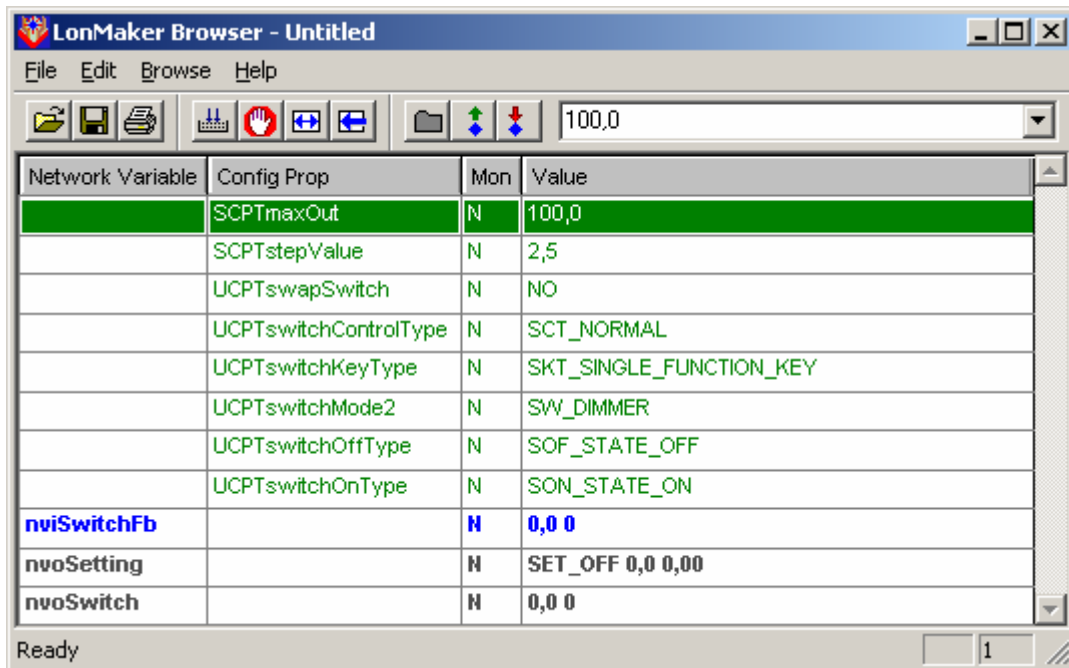


Figure 6 Browsing the switch object

1.2.4.1 Network Variable Interface

Variable name	Default Value	Type	Description
nviSwitchFb	0,0 0	SNVT_switch (95)	Actuator feed back
nvoSwitch	0,0 0	SNVT_switch (95)	Control output
nvoSetting	SET_OFF 0,0 0,00	SNVT_setting (117)	Control output

1.2.4.1.1 nviSwitchFb

This variable is the feed back input on the object, giving the object a feed back from the device of object it is operating.

1.2.4.1.2 nvoSwitch

This variable is the output from the object and is used to operate other object. The function on the switch object is the toggle type, meaning the every time the hardware input to the object has been shorted, the switch out variable will change between 100% state 1 (ON) and 0% state 0 (OFF).

1.2.4.1.3 nviSetting

This output network variable control the operating mode for controllers. The operating modes are: ON or OFF

The ON mode turns on the controller which then starts to control the actuator value output. The OFF mode turns off a controller, so it stop running.

1.2.4.2 Configuration Properties

Configuration	Default Value	Description
SCPTmaxOut	100,0	Output limitation selection
SCPTstep	2,5	Dimmer speed
UCPTswapSwitch	NO	Is ON right or left selection
UCPTswitchControlType	SCT_NORMAL	Combination function select.
UCPTswitchKeyType	SKT_SINGLE_FUNCTION_KEY	1 or 2 channels on one block
UCPTswitcMode2	SKT_DIMMER	Switch function mode
UCPTswitchOffType	SOF_STATE_OFF	STATE function when OFF
UCPTswitchOnType	SOF_STATE_ON	STATE function when ON

1.2.4.2.1 SCPTmaxOut

This configuration property is used to set the maximum output from the switch object, limiting the output level. The value is described in percent level, from 0,5 to 100 %.

1.2.4.2.2 SCPTstep

This configuration property is used to set the step value for the dimmering function, describing the percent step for each clock the dimmer output will change per clock. The value is in percent a low value gives a slow dimmer function and a high value gives a fast dimmer function.

1.2.4.2.3 UCPTswapSwitch

This configuration property is used to set ON and OFF position on the block for the function keys. Standard is ON the left side function key and OFF is the right side.

UCPTswapSwitch is default NO

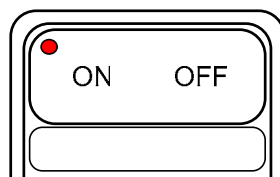


Figure 7 The default swap switch configuration, is NO

If UCPTswapSwitch is YES, ON is right and OFF is left.

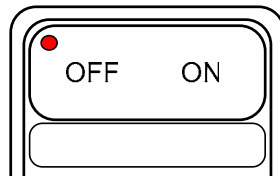


Figure 8 The swap switch configuration, when YES

1.2.4.2.4 UCPTswitchControlType

This configuration property is used to select the combination function for switch and setting output.

UCPTswitchControlType	Index#	Description
SCT_NORMAL	0	Normal, only setting or switch bound
SCT_COMBINED_SETTING_DIM	1	Both switch and setting bound, setting is used for dimming
SCT_COMBINED_SWITCH_DIM	2	Both switch and setting bound, switch is used for dimming

1.2.4.2.5 UCPTswitchKeyType

This configuration property is used to select if one key block is one channel or two channels.

UCPTswitchKeyType	Index#	Description
SKT_SINGLE_FUNCTION_KEY	0	The key block is used to control a single channel, gives 1 object
SKT_DUAL_FUNCTION_KEY	1	The key is used to control two different channels and gives two objects

Objects used depending on the function key type

Block #	Key type	Objects used	Objects not used
1	Single	Switch[0]	Switch[1]
1	Dual	Switch[0], Switch[1]	
2	Single	Switch[2]	Switch[3]
2	Dual	Switch[2], Switch[3]	
3	Single	Switch[4]	Switch[5]
	Dual	Switch[4], Switch[5]	

Relation between objects and channels, when type dual

Channel	Object name in LonMaker	Block #
1	Switch[0]	1
2	Switch[2]	2
3	Switch[4]	3

Relation between objects and channels, when type single

Channel	Object name in LonMaker	Block #
1	Switch[0]	1
2	Switch[1]	1
3	Switch[2]	2
4	Switch[3]	2
5	Switch[4]	3
6	Switch[5]	3

It is possible to make any combination per key block. Having one channel on one key block and have two channels on the other 2 key blocks or many other combinations. This is giving a very high flexibility.

1.2.4.2.6 UCPTswitchMode2

This configuration property is used to select the function for a channel.

UCPTswitchMode2	Index#	Description
SW_DIMMER	0	Normal dimmer and on/off switch
SW_DIMMER_ONLY	1	Only dimmer function
SW_ON_OFF	2	On/off switch
SW_TOUCH_DIMMER	3	Touch dimmer
SW_TOGGLE	4	Toggle between on and off
SW_ACTIVE_ON	5	On when pressed otherwise off
SW_ACTIVE_OFF	6	Off when pressed otherwise on
SW_ONLY_ON	7	Send only on signal
SW_ONLY_OFF	8	Send only off signal

The combination of type and mode, gives the product an extreme high flexibility. You can have a key block configured as one channel and the mode can be toggle. This will give one block which can toggle ON and OFF, on both left and right side of the key block.

You can also configure the key blocks to be 6 channels and the mode to touch dimmer. This will give 6 dimmer channels as touch dimmer functions.

The touch dimmer function is a new function in Prolon intelligent operating panels from software version 2. A touch function operates as follow:

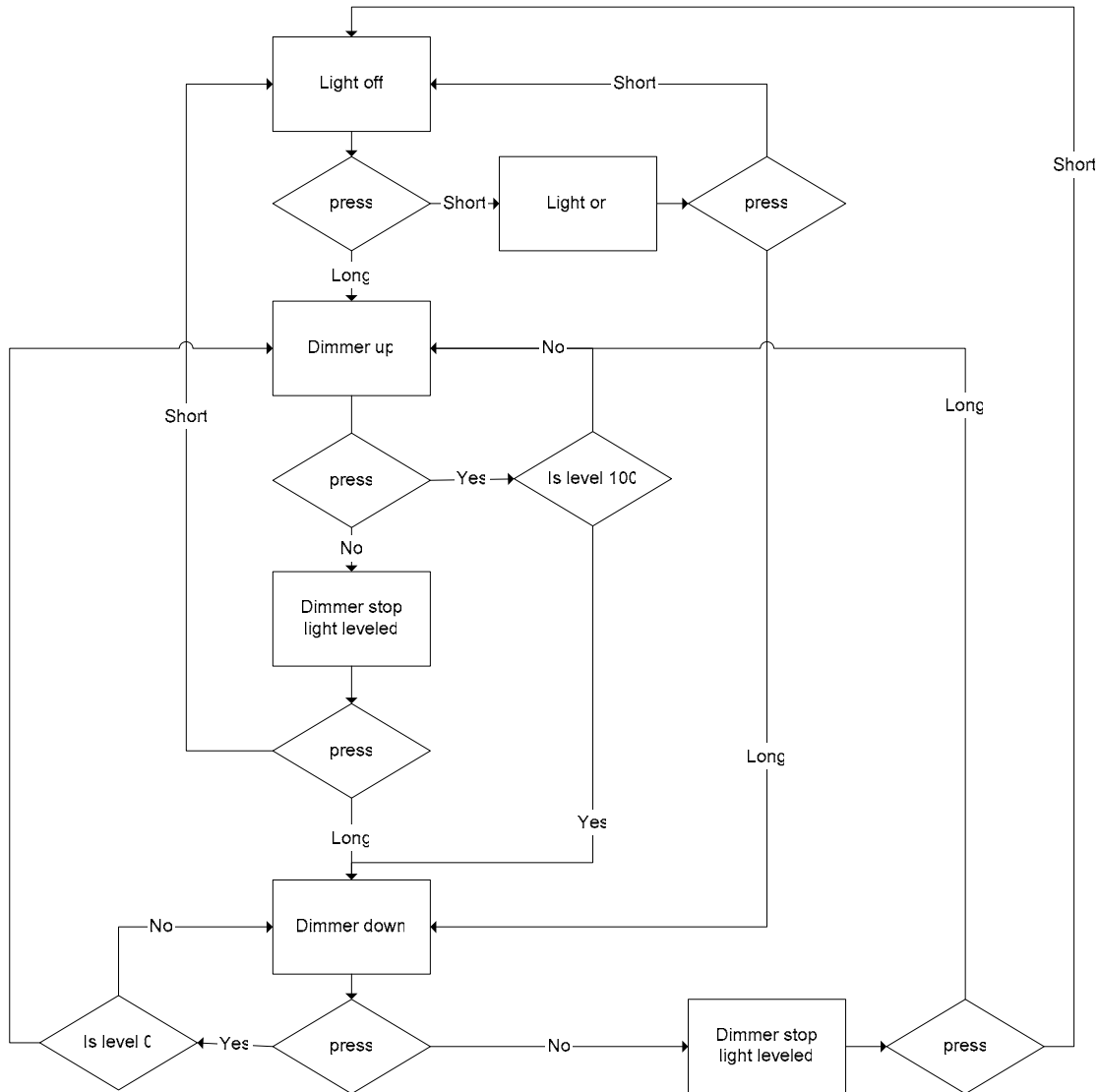


Figure 9 Touch dimmer function diagram

1.2.4.2.7 UCPTswitchOffType

TO DO

1.2.4.2.8 UCPTswitchOnType

TO DO

1.2.4.3 Switch object typically use

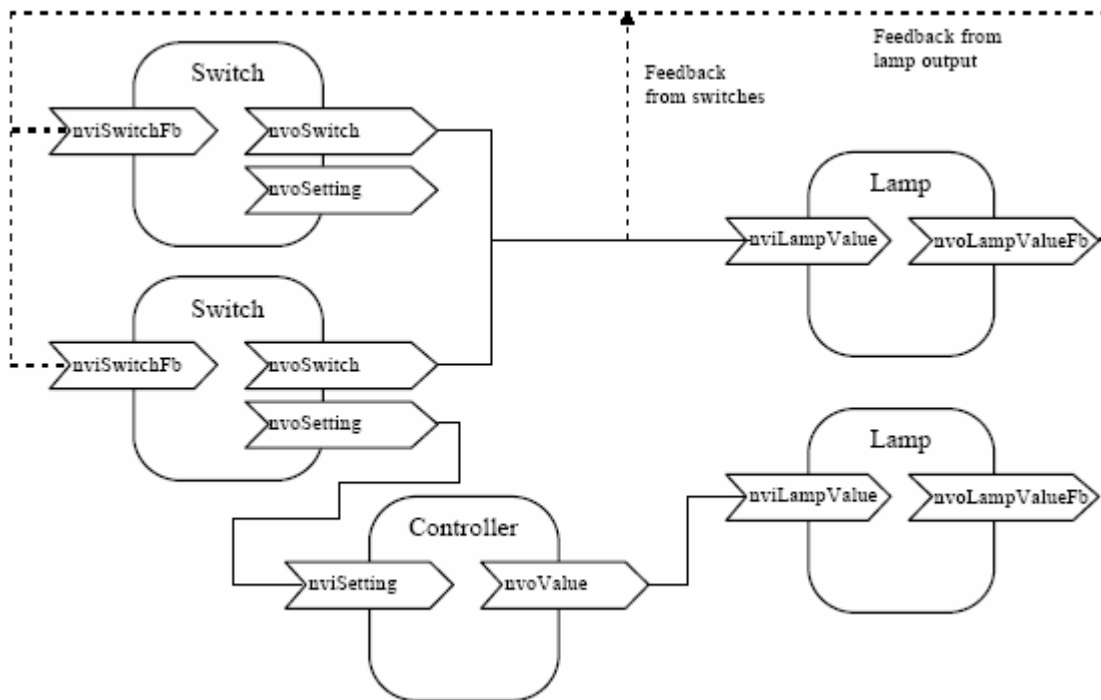


Figure 10 Typically use of the switch object



2 Software History

2.1 Software version 2.00

New configuration implemented for the switch mode functions. New switch modes implemented, as the touch dimmer.

2.2 Software version 1.01

Minor bug corrected

2.3 Software version 1.00

Initial release

This firmware contains the following LonMark(tm) objects:

Index	Object Type	Primary NV Type
0	Node Object	SNVT_obj_status
1-6	Switch	SNVT_switch
7-9	Led	SNVT_switch
10	Scene Panel	SNVT_scene
11-12	Scene Controller	SNVT_scene

3 Applications and bindings

3.1 Manual Control, Light Bindings

3.1.1 Single on and off.

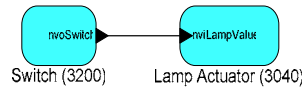


Figure 11 Single on and off

3.1.2 Single on and off with feed back.

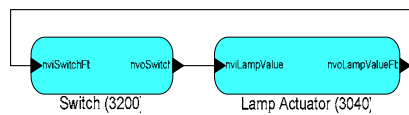


Figure 12 Single on and off with feed back

3.1.3 Multi on and off with feed back.

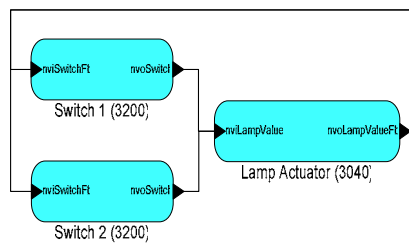


Figure 13 Multi on and off with feed back

3.1.4 Single on and off with multi actuators 1.

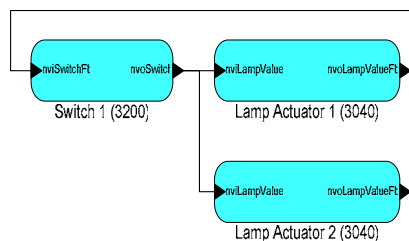


Figure 14 Single on and off with multi actuators

3.1.5 Single on and off with multi actuators 2.

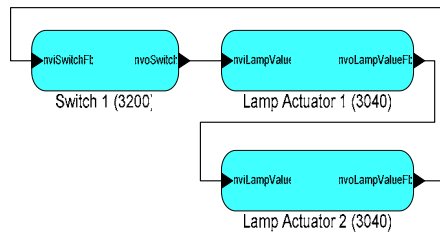


Figure 15 Single on and off with multi actuators, 2

3.1.6 Multi on and off with multi actuators 1.

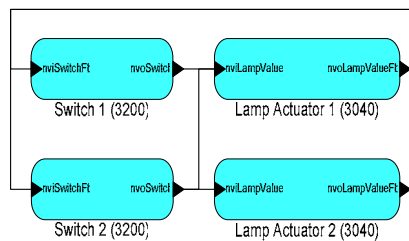


Figure 16 Multi on and off with multi actuators, 1

3.1.7 Multi on and off with multi actuators 2.

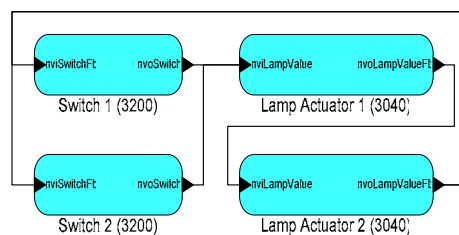


Figure 17 Multi on and off with multi actuators, 2

3.1.8 Occupancy on off, with manual override.

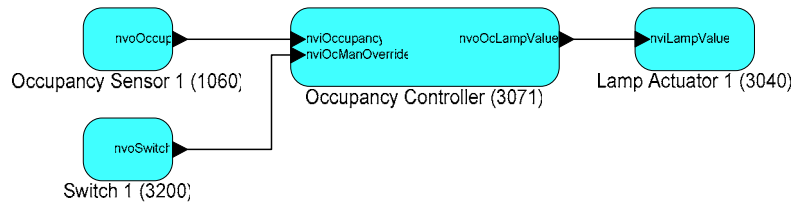


Figure 18 Occupancy automatic on off, with manual override

3.1.9 Occupancy on off, manual override and manual control indicator.

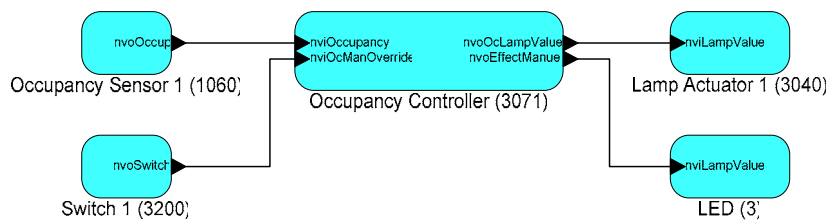


Figure 19 Occupancy automatic on off, manual override and manual control indicator



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