Module Information:

Name: RBI Zone Control Helper v2

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Summary: This module uses an XML file to setup the configuration of a single lighting zone. It's designed to work with a subpage reference list on a touch panel to give full control of a zone that is easily scalable.

General Notes: Many of the zone control options are only updated using the config file.

****Important Note About Zone Level Feedback (lvl_fb):** This is an additional signal to be used solely for touch panel feedback. It is buffered from lvl_in (true feedback). It should not be tied to lvl_in or lvl_out, or it will cause errors.

Inputs/Outputs/Parameters:

Inputs:

initialize_module	When pulsed, this reads all of the zone's settings from the config file. Should be pulsed at system startup.
lvl_in	True feedback from the lighting load. For most lighting modules, this will be the same signal name as lvl_out. For Dali zones, this should be a different signal name. This module won't function correctly if this signal is not defined.
zone_on	Pulse to turn the light on (intended to be attached to a SRL)
zone_off	Pulse to turn the light off (intended to be attached to a SRL)
zone_on/off	Pulse to toggle the light on/off (intended to be attached to a SRL)
zone_raise	Press to raise the zone (intended to be attached to a SRL). This will only raise the lighting level if the zone is set to "raise from off" in the config file, or the zone is already on. If dali_fb is true, This signal will have no effect on lvl_out. For dali zones, dali_raise and dali_lower should be tied to the raise/lower digital inputs of the dali controller.
zone_lower	Press to lower the zone (intended to be attached to a SRL) If dali_fb is true, This signal will have no effect on lvl_out. For dali zones, dali_raise and dali_lower should be tied to the raise/lower digital inputs of the dali controller.
[keypad_on]	Optional press to turn the zone on. Can be used to put a friendlier signal name on a keypad.
[keypad_off]	Optional press to turn the zone off. Can be used to put a friendlier signal name on a keypad.
[keypad_on/off]	Optional press to toggle the zone on/off. Can be used to put a friendlier signal name on a keypad.

[keypad_raise]	Optional press to raise the zone level. Can be used to put a friendlier signal name on a keypad. This will only raise the lighting level if the zone is set to "raise from off" in the config file, or the zone is already on. If dali_fb is true, This signal will have no effect on lvl_out. For dali zones, dali_raise and dali_lower should be tied to the raise/lower digital inputs of the dali controller.
[keypad_lower]	Optional press to lower the zone level. Can be used to put a friendlier signal name on a keypad. If dali_fb is true, This signal will have no effect on lvl_out. For dali zones, dali_raise and dali_lower should be tied to the raise/lower digital inputs of the dali controller.
relay_on_fb	Should be tied to the true feedback of a relay panel
[save_on_level]	Optional signal that will save the current lvl_in as the level that will be recalled when the zone is turned on.
[save_off_level]	Optional signal that will save the current lvl_in as the level that will be recalled when the zone is turned off.

Outputs:

lvl_out	Analog value to be tied to the lighting controller.
zone_name$	A friendly name to be used on a touch panel. Updated from the config file.
lvl_fb	Mirrors the value of lvl_in, and is intended to be used for touch panel feedback. This signal should **not** be tied to lvl_in or it will cause errors.
zone_on_fb	Will go high if lvl_in is greater than the off level defined in the config file.
zone_off_fb	Will go high if lvl_in is less than or equal to the off level defined in the config file.
dimmable_fb	Read from the config file. Intended to be used to make dimming levels and raise/lower buttons visible on a touch panel.
zone_used_fb	Read from the config file. Intended to make the zone visible on a touch panel.
[keypad_on_fb]	An optional signal meant to use for a friendly signal name on a keypad. Will always have the same state as zone_on_fb.
[keypad_off_fb]	An optional signal meant to use for a friendly signal name on a keypad. Will always have the same state as zone_off_fb.
relay_off_fb	The inverse of relay_on_fb. Intended for use as true fb for a keypad.
zone_on_pulse	Will pulse every time lvl_in changes and is greater than the off value defined in the config file. Is intended to be tied to the on press of a relay so that the zone can be added to an analog preset.
zone_off_pulse	Will pulse every time lvl_in changes and is equal to or less than than the off value defined in the config file. Is intended to be tied to the off press of a relay so that the zone can be added to an analog preset.
dali_raise	Tied directly to zone_raise. Should be attached to the digital raise of a dali group or fixture. This will only pulse if the zone is set to "raise from off" in the config file, or the zone is already on.
dali_lower	Tied directly to zone_lower. Should be attached to the digital lower of a dali group or fixture.
dali_fb	Indicates that the dali is set to true in the config file. Intended for debugging purposes.

raise_from_off_fb	Indicates that the raise_zone input will raise the zone if the zone is off. Intended for debugging purposes.
ramping_fb	Indicates that the zone is currently ramping, or recalling on/off. Intended for debugging purposes.
slew_rate	Indicates the number of seconds that it will take the zone to go from fully off to on, or vice versa. Intended for debugging purposes.
ramp_time	Indicates the number of seconds that it will take the zone_raise or zone_lower signals to turn the zone fully off or on. Intended for debugging purposes.
[on_level_saved]	(Optional) Will go high for about a second if a new on level is successfully saved.
[off_level_saved]	(Optional) Will go high for about a second if a new off level is successfully saved.

Parameters:

filename	The location on the processor where the configuration file is stored. The default is a file called zones.xml in the user folder.
zone_id	The id of the current zone, to be used to find it in the config file.

Config File Only Options:

Lower Bound	The lowest value that the zone will dim to. Intended to be used as a hard lower limit for zones that are supposed to stay above a certain level at all times.
Upper Bound	The highest value that the zone will raise to. Intended to be used as a hard upper limit for zones that will have problems if raised above a certain level.
Raise from Off	If set to 0, the raise_zone input will have no effect if zone_off_fb is high. If set to 1, the raise_zone input will always have an effect.

Example XML File:

```
<file xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <zone zoneID="z01">
    <dali>0</dali>
    <dimmable>1</dimmable>
    <inUse>1</inUse>
    <slew_rate>2</slew_rate>
    <ramp_time>6</ramp_time>
    <friendly_name>Room Friendly Name</friendly_name>
    <lower_bound>0</lower_bound>
    <upper_bound>65535</upper_bound>
<off_level>100</off_level>
<on_level>65535</on_level>
    <raise_from_off>0</raise_from_off>
  </zone>
</file>
```