Overview

This Application Note describes general information about using DALI-2 Input Devices with the RAPIX system.

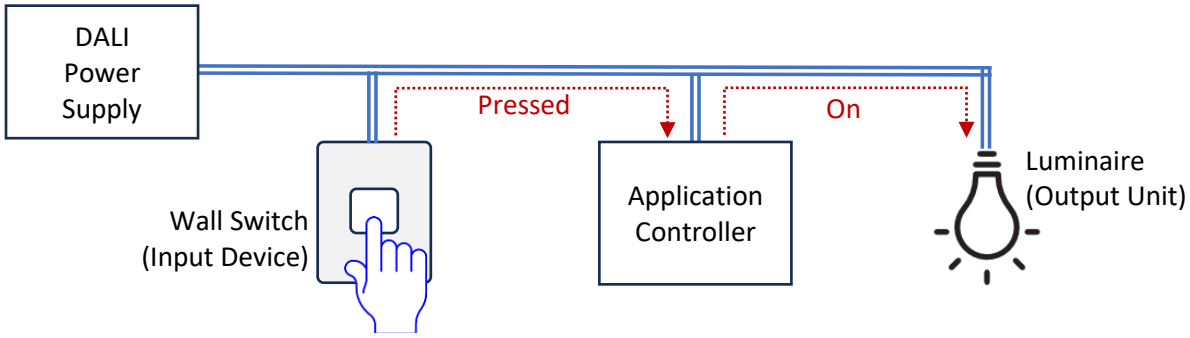
Definition of Terms

Application Controller	*(DALI standard definition)* A control device that is connected to the DALI Line and allows Input Devices to control outputs (e.g lamps, relays) connected to the same DALI Line.
Control Devices	A DALI unit that generates events that are the inputs to the system. Examples include Buttons, Dials, Light Level Sensors, and Motion Sensors. Also known as Input Devices.
Control Gear	A DALI unit that responds to commands and controls the outputs from the system. Examples include DALI lamps and DALI relays. Also known as Output Units.
Input Devices	See Control Devices.
Instance	An “instance” is input to an Input Device. An instance will be one of the supported instance types.
Instance type	The type of instance: • Button • Absolute Input (dial) • Presence/Movement sensor • Light Level sensor
Light Level Sensor	An Input Device that measures the amount of light falling upon it. A Light Level Sensor is frequently mounted on a ceiling.
Movement	Sometimes also called Motion. A determination by a sensor, that a person is moving in the detection area of the sensor.
Movement Sensor	*(DALI standard definition)* A type of sensor based only on movement detection, where occupancy is determined by movement, and vacancy is concluded from the absence of movement during a specified amount of time. Sometimes called a Motion sensor.
Occupancy	A space is Occupied if there is a person in that space. Occupancy may be determined by a Movement sensor, or a Presence Sensor.
Output Units	See Control Gear.

Presence Sensor	*(DALI standard definition)* A type of sensor based on means other than only movement detection, where occupancy and vacancy can be concluded immediately and where, in some cases, movement can also be detected. Sometimes called an occupancy sensor.
Sensor	An Input Device that measures some property. Examples: light level, movement, voltage, current, fluid flow rate.
Template	A mechanism for allowing the user to configure the operation of the RAPIX system.
Vacancy	A determination, by a Movement Sensor or Presence Sensor, that a space is not occupied.

DALI-2 System Operation

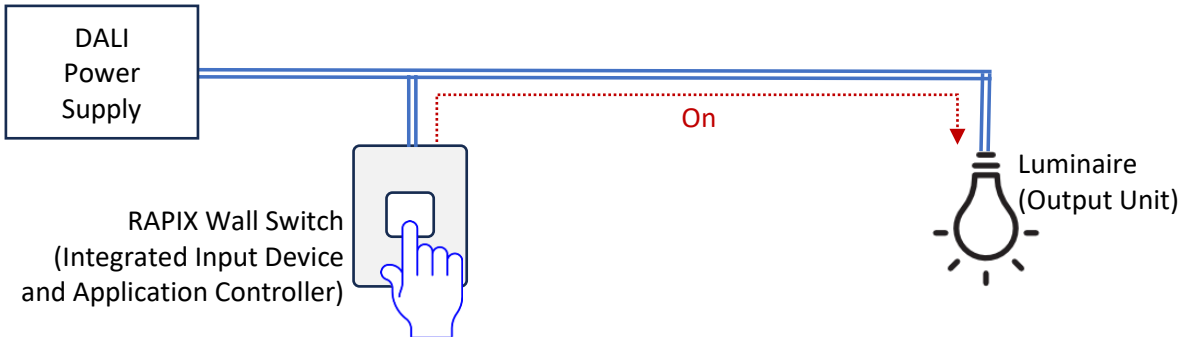
An example of a very simple DALI system is shown below to illustrate operation of common DALI-2 systems.



A very simple DALI-2 system

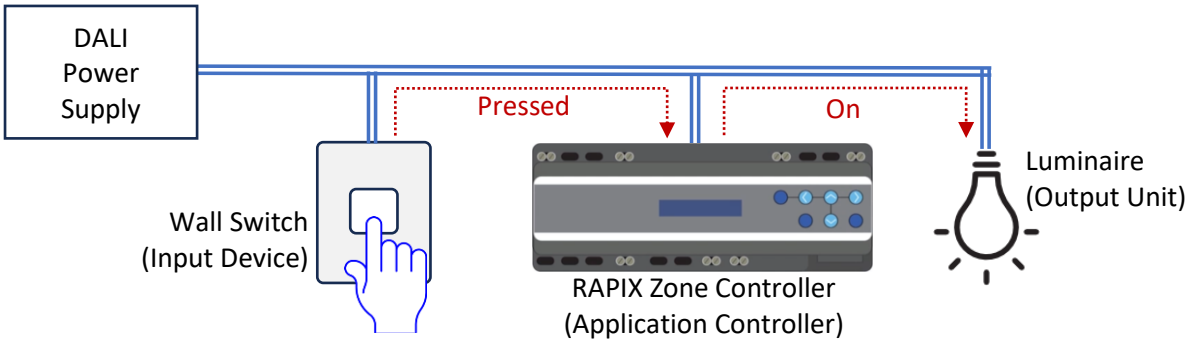
When the user presses the button, a message is sent onto the DALI Line. The Application Controller observes this message and performs some pre-programmed task. In this case, it turns on the luminaire by sending another message onto the DALI Line.

It is the Application Controller that implements the system behaviour. In a RAPIX System, all Input Devices have built-in Application Controllers, so the system becomes even simpler.



A very simple RAPIX DALI-2 system

If non-RAPIX DALI-2 Input Devices are used with a RAPIX system, the RAPIX Zone Controller can act as an Application Controller.



A very simple RAPIX System using a non-RAPIX DALI-2 Input Device

DALI-2 Input Device Settings

DALI-2 Input Devices need to be configured to be used with the RAPIX Zone Controller. The required settings are described below.

An Input Device can have more than one input. Each input is referred to as an “instance”.

Push Buttons

Push Buttons (instances that support DALI standard 62386-301) need to have their settings as shown in the table below:

Setting	Value	Comment
Event messages	Enabled	
Primary Instance Group	0 - 31	This value is used to identify which button was pressed
Instance Group 1	-	Not used
Instance Group 2	-	Not used
Event Addressing Scheme	Instance Group	DALI Default = “Instance”
Event Priority	3	DALI standard default value
Event Filter		
Button Released	Disabled	Not used
Button Pressed	Enabled	DALI default = disabled
Short Press	Enabled	
Double Press	Disabled (Enabled if needed)	Enable this only for templates that use a double-click
Long Press Start	Enabled	Can enable this only for templates that use the long press
Long Press Repeat	Disabled	DALI default = enabled
Long Press Stop	Enabled	Can enable this only for templates that use the long press
Button Stuck/Free	Disabled	DALI default = enabled
Short Press Timer	500	DALI standard default value
Double Press Timer	Disabled (0) If double click needed: 320	DALI default = 0 (disabled). Only change this if double-click is needed.
Repeat timer	160	DALI standard default value
Stuck Timer	20	DALI standard default value

Bi-stable switches and Dials (Absolute Level Inputs)

Bi-stable switches and Dials (instances that support DALI standard 62386-302) need to have their settings as shown in the table below:

Setting	Value	Comment
Event messages	Enabled	
Primary Instance Group	0 - 31	This value is used to identify which switch is operated or which dial was rotated
Instance Group 1	-	Not used
Instance Group 2	-	Not used

Setting	Value	Comment
Event Addressing Scheme	Instance Group	DALI default = “Instance”
Event Priority	3	DALI standard default value
Event Filter		
Position	Enabled	
Deadtime Timer	250ms	DALI default = 100ms
Report Timer	Disabled (0)	DALI standard default value

Movement Sensors

It is recommended that Occupancy / Movement sensors be used, rather than Occupancy / Presence sensors. Occupancy/Presence sensors do not support the Cancel Hold Timer message which is essential for some aspects of correct system operation.

Movement sensors (instances that support DALI standard 62386-303) need to have their settings as shown in the table below:

Setting	Value	Comment
Event messages	Enabled	
Primary Instance Group	0 - 31	This value is used to identify which motion sensor sent the event
Instance Group 1	-	Not used
Instance Group 2	-	Not used
Event Addressing Scheme	Instance Group	DALI default = “Instance”
Event Priority	4	DALI standard default value
Event Filter		
Occupied	Enabled	DALI standard default value
Vacant	Disabled	DALI default = enabled
Repeat	Enabled	DALI default = disabled
Movement	Disabled	DALI standard default value
No Movement	Disabled	DALI standard default value
Deadtime Timer	Disabled (0)	DALI default = 100 ms
Hold Timer	20 sec	DALI default = 900 sec
Report timer	30 sec	DALI default = 20 sec

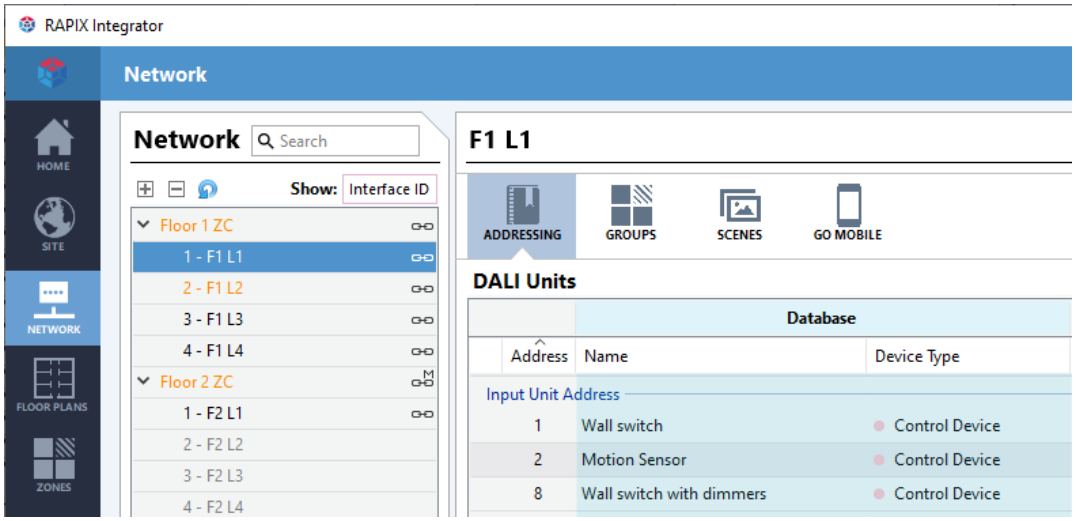
Light Level Sensors

Light Level sensors (instances that support DALI standard 62386-304) need to have their settings as shown in the table below:

Setting	Value	Comment
Event messages	Enabled	
Primary Instance Group	0 - 31	This value is used to identify which light level sensor sent the event
Instance Group 1	-	Not used
Instance Group 2	-	Not used
Event Addressing Scheme	Instance Group	DALI default = “Instance”
Event Priority	4	DALI standard default value
Event Filter		
Illuminance	Enabled	
Deadtime Timer	1500 ms	DALI standard default value
Report timer	Disabled (0)	DALI default = 30 sec
Hysteresis Min (Lux)	Use default value for device	
Hysteresis (%)	5	DALI standard default value

Using RAPIX Integrator to set DALI-2 Settings

On the RAPIX Integrator Addressing Tab, the Input Devices on the selected DALI Line are listed.

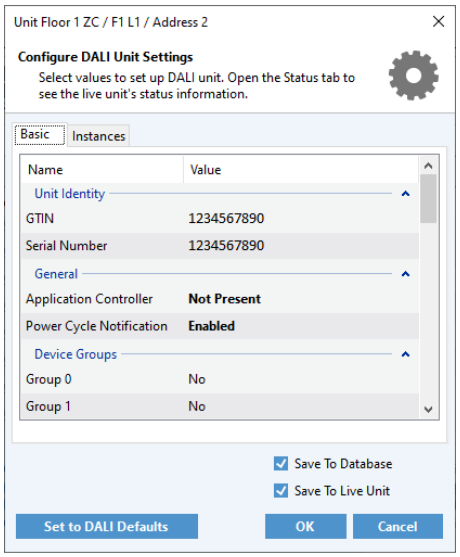


Input Devices shown in RAPIX Integrator

To edit a non-RAPIX DALI-2 Input Device:

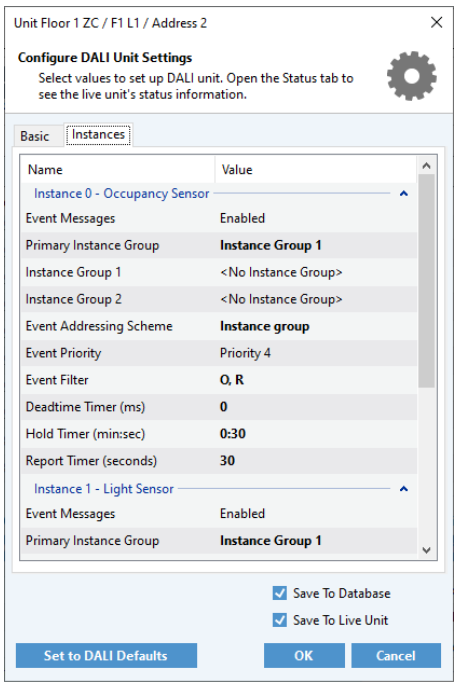
1. Double-click on the unit in the list, or select the unit and click the Edit button. The Editor form will be shown.

The Edit Button



The Editor form

2. Select the Instances Tab to view and edit the instance settings. The example shown below is for a unit with an Occupancy Sensor and a Light level sensor.



The Instances Tab

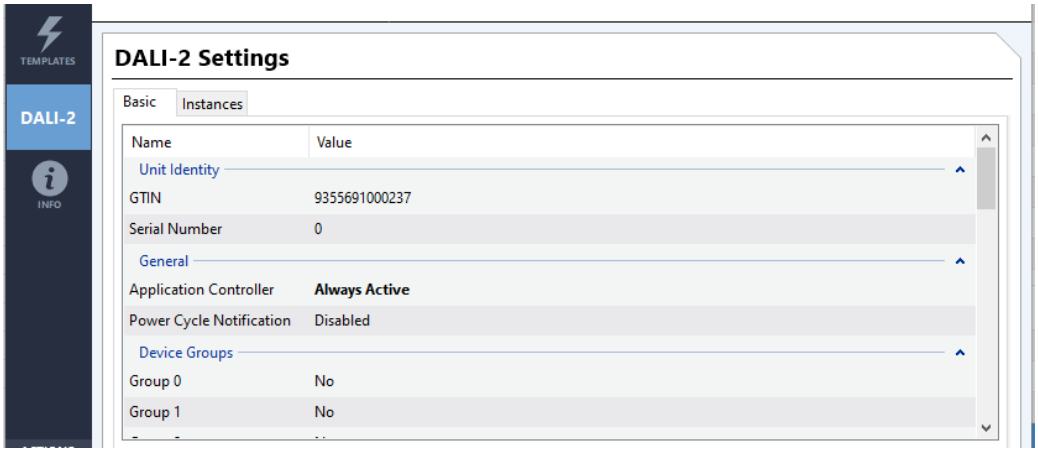
3. Make the necessary changes and click on OK to save the changes.

RAPIX DALI-2 Input Devices have a richer feature set than generic DALI-2 Input Devices, however they can be configured identically to non-RAPIX Input Devices as follows:

1. Double-click on the unit in the list, or select the unit and click the Edit button. The Editor form will be shown.

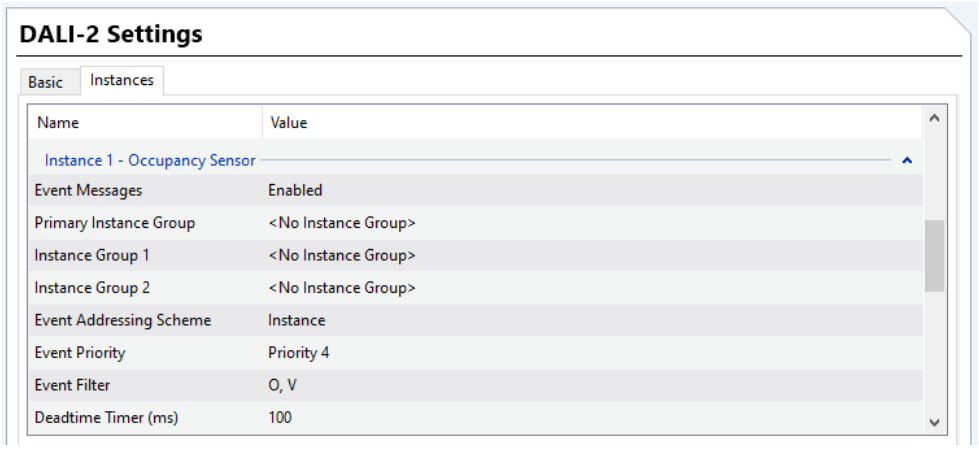
The Edit Button

2. Select the DALI-2 Tab



The RAPIX Input Device DALI-2 Tab

3. **If templates are not being used (i.e. it is being used as a DALI-2 Input Device only), then the Application Controller must be disabled**.
4. Select the Instances Tab to view and edit the instance settings. The example shown below is for a unit with an Occupancy Sensor and a Light level sensor.



The RAPIX Input Device Instances Tab

5. Make the necessary changes and click on OK to save the changes.

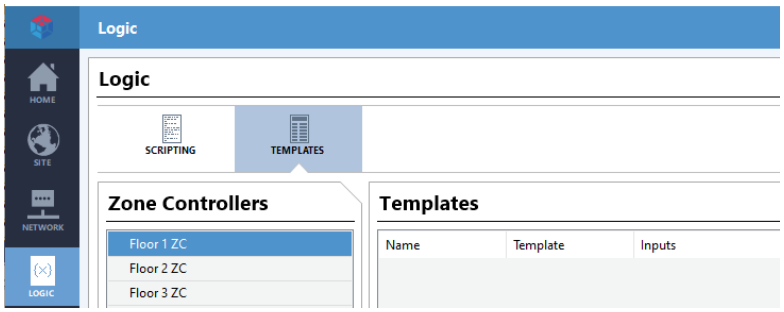
Zone Controller Templates

When the Zone Controller is used as a DALI “Application Controller”, the functionality is configured using “templates”. A template defines a single function for the RAPIX system. Templates are provided for each of the input types:

- Button
- Absolute Input (dial)
- Presence/Movement sensor
- Light Level sensor

To add a Zone Controller template:

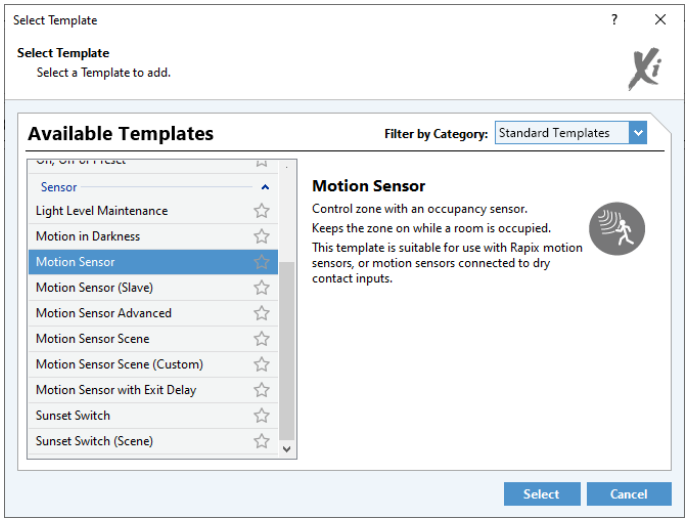
1. Select the Logic / Templates tab.



The Logic / Templates Tab

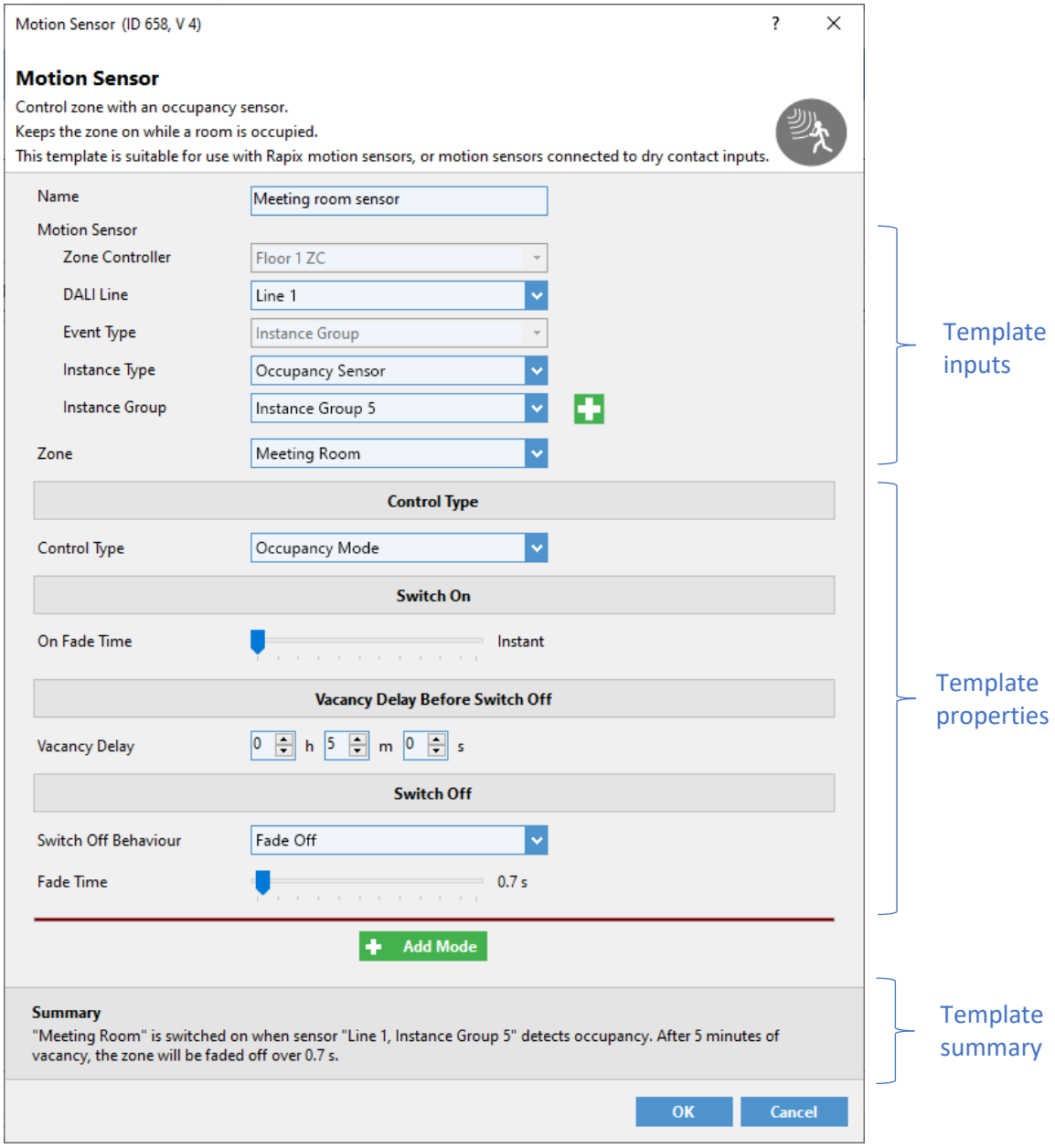
2. Click on the Add button. The template selection form will be shown.

The Add button



The template selection form

3. Select the template from the list, then click on the Select button. The selected template will be shown.



The Motion Sensor template

4. Enter a meaningful name for the template function.
5. Select the input(s) to the template. If more than one input is required, click on the ✚ button.
6. Select the other template properties.
7. Click on OK when finished.
8. Transfer the project to the Zone Controller when all templates are finished.

Change History

Rev	Date	Updated By	Comment
1	2 Feb 2024	DMS	First release
2	16 Feb 2024	DMS	Updated Motion Sensor Hold Timer value

Contact Information

Web www.ozuno.com

All Enquiries +61 8 8362 7584 sales@ozuno.com

Ozuno Trading Pty Ltd

ABN: 96 621 194 483

4/115 Payneham Rd
St Peters SA 5069
Australia