Intesis®
BY HMS NETWORKS

Application note
DALI local Control – Input Devices

DALI 2

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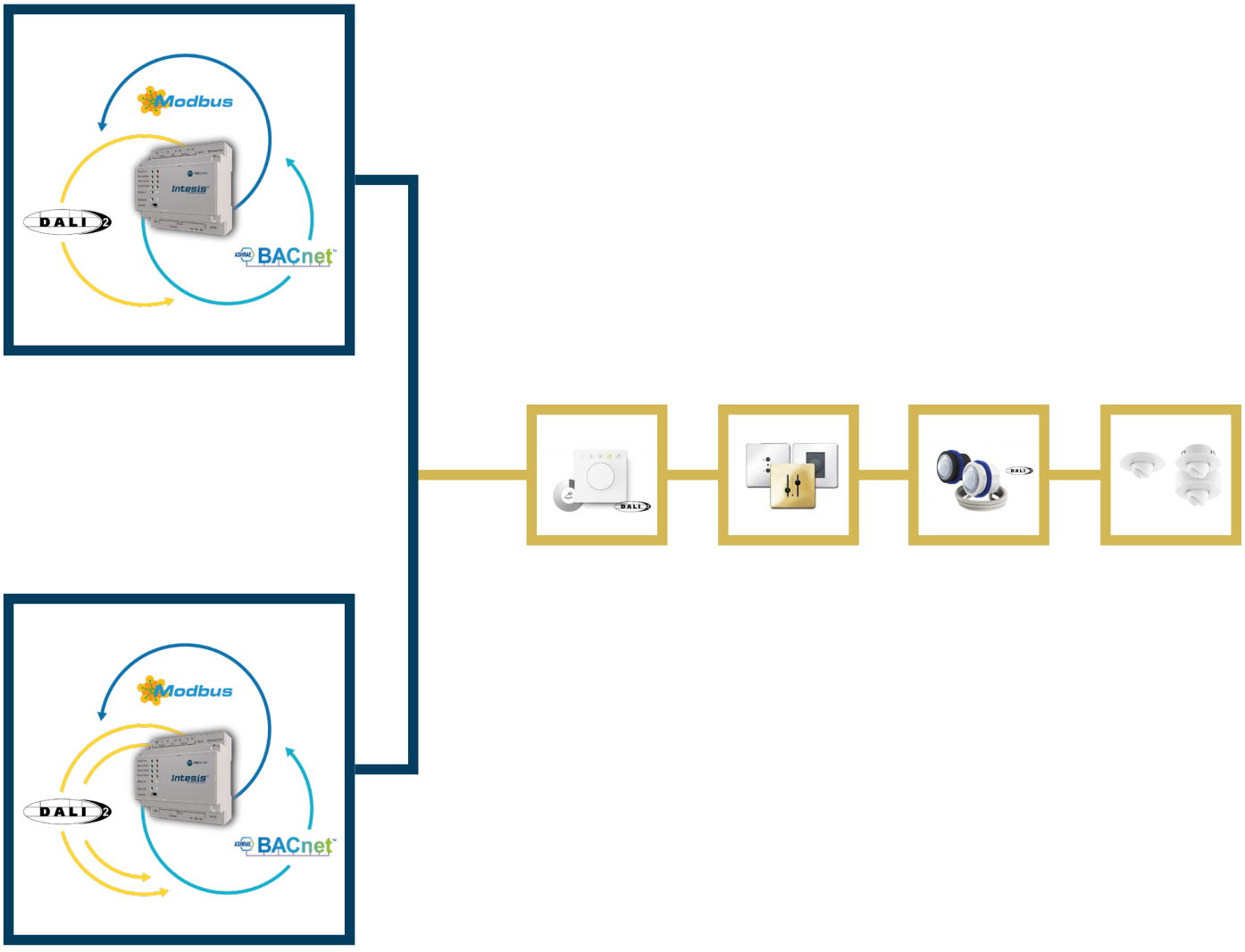
HMS

Introduction

Local control options for DALI gateways have been expanded with the new Intesis 700 Series DALI gateways to cover all input device types, as local management for occupancy and daylight sensors has been added to the already existing coverage for push buttons and absolute inputs. This document describes in detail the options and modes available for all these input devices' local control.



Input device and instances supported

Intesis is certified to support the following parts for input devices:

- Push button instances (Part 301)
- Absolute input device instances (Part 302)
- Occupancy sensor instances (Part 303)
- Light sensor instances (Part 304)

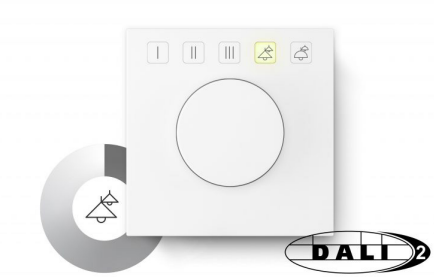
DALI ALLIANCE DATABASE PRODUCT

INSTANCE:
An instance is the specific set of features that a sensor, push button, or any input device can support. Up to ten associated instances can be defined for each input device.

INPUT DEVICE TYPES:

PUSH BUTTONS:
Input device type used to control lights locally. It can send these events:

- Press
- Release
- Short-press
- Long-press
- Double-press
- Button-stuck



ABSOLUTE INPUTS:
This type covers a variety of devices, such as:

- Multi-position switches
- Analog inputs
- Slider or rotary controls

It sends a “position” event.

DALI Local Control – Input Devices

OCCUPANCY SENSORS:

Movement or presence type sensors. Depending on the sensor type, events can be triggered on state change to:

- **Occupied**
- **Vacant**
- **Movement**
- **No movement**

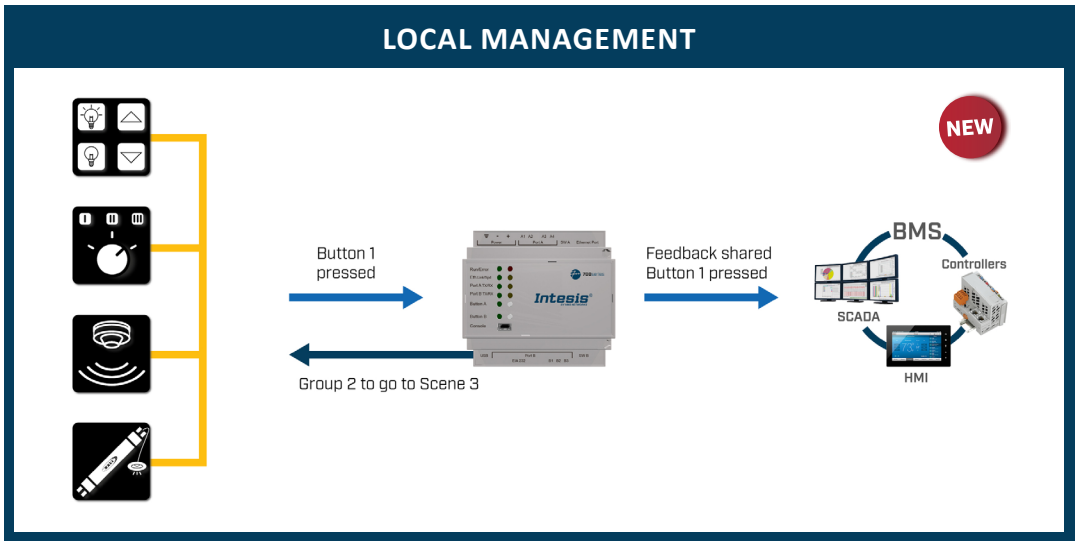
LIGHT SENSORS:

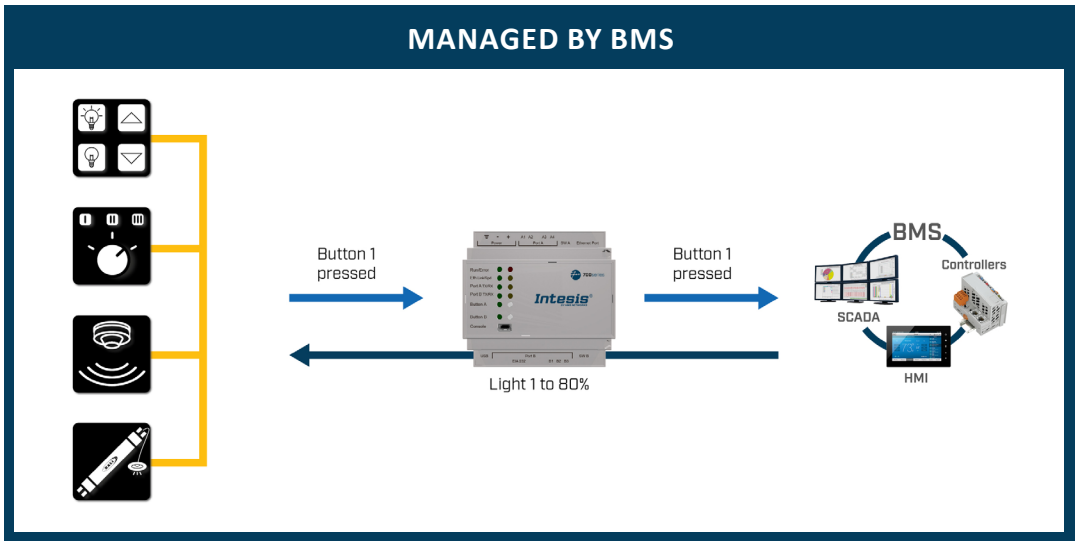
Allow measurement of the illuminance level. Hysteresis is programmable to minimize bus traffic.

Available control types

All input devices (push buttons, absolute input devices, light sensors, and occupancy sensors) can be handled in two different ways:

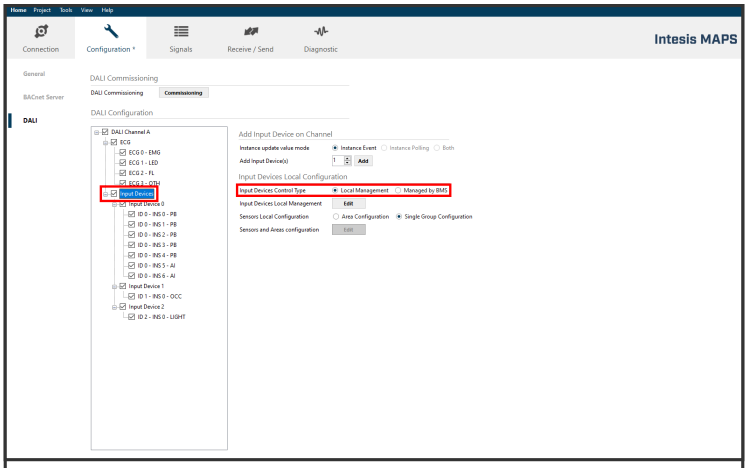
- **Local Management (default):** The gateway manages the input device instances directly, achieving a quicker reaction time. This also helps to reduce the BMS' DALI requests load, something especially appreciated by BMS manufacturers.
- **Managed by BMS:** The gateway acts as just a protocol translator. All input device instances are managed by the BMS.





Input device local management

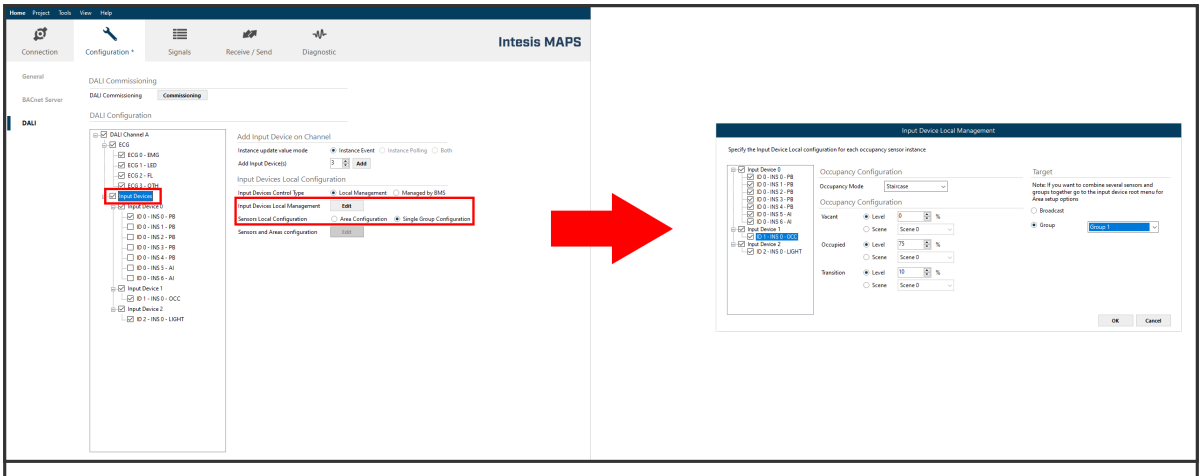
To enable the Area Configuration and the Single Group Configuration options, set the Input Devices Control Type in Local Management.



Input Device Local Management

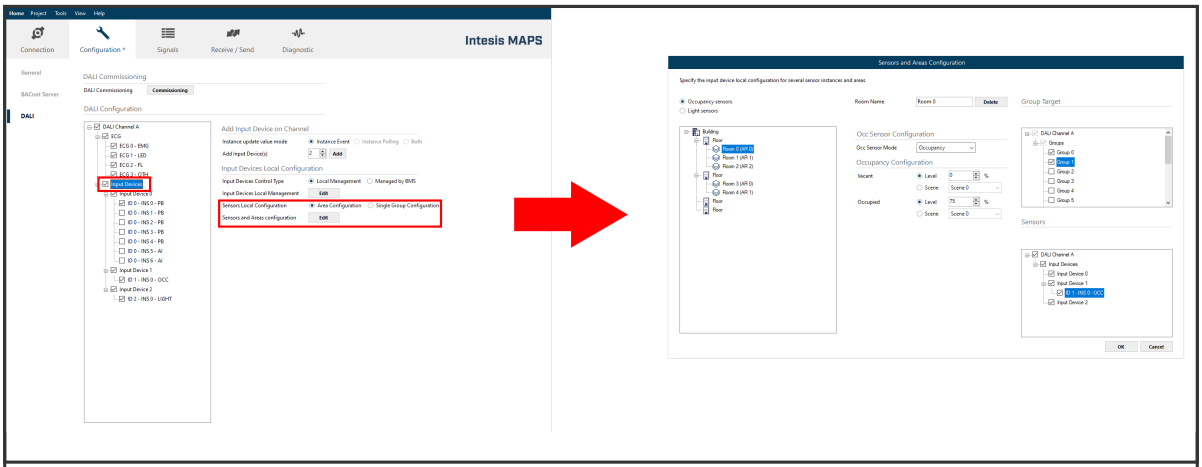
Once enabled, there are two available options:

- **Single Group Configuration (default value):** Used to associate one sensor to a group or channel, so the targeted group or channel will receive the selected commands from this sensor. All input device types are visible on the Input Device Local Management window.



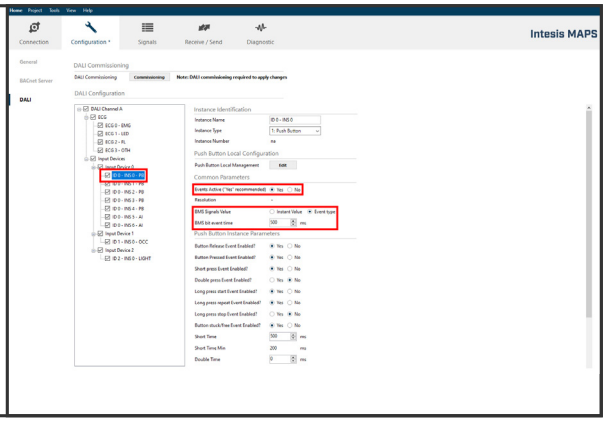
Input Devices Local Configuration – Single Group Configuration

■ **Area Configuration:** Allows configuring and grouping multiple occupancy and light sensors to operate together by defining a three-level hierarchy based on building, floors, and rooms. Sensors will not appear in the Input Device Local Management window when area configuration is enabled.



Input Devices Local Configuration – Sensors and Areas Configuration

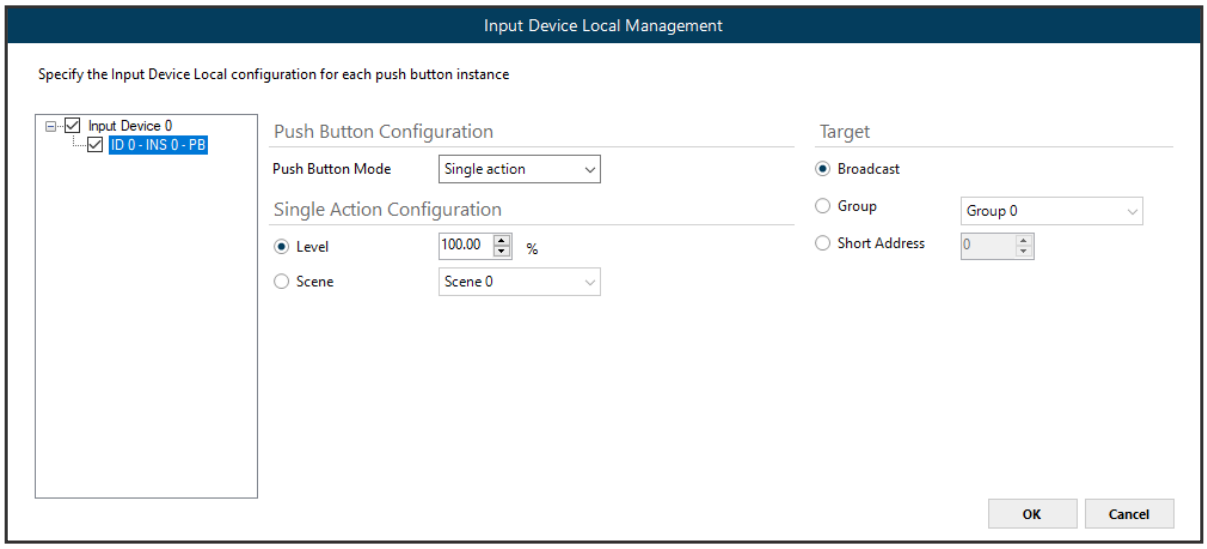
The events and parameters for the desired functionalities must be activated, as well as the specific events required for the application, like for example the double press event for push buttons or the position event for sliders. Setting Events Active to Yes is also mandatory.



PUSH BUTTON CONFIGURATION

The configurable options for push buttons in input device local management are:

■ **Single action:** It is triggered by the short press event.
■ **Dimmer:** It requires the long press repeat event and uses the value from the Repeat Time parameter for the interval.
■ **Toggle:** It is used to implement two actions in a single button, like a simple ON/OFF or more elaborated actions.
■ **Multi-action:** This option can be used to expand the button functionality, as it is used to define a different action for the short press, the long press, and the double press events.

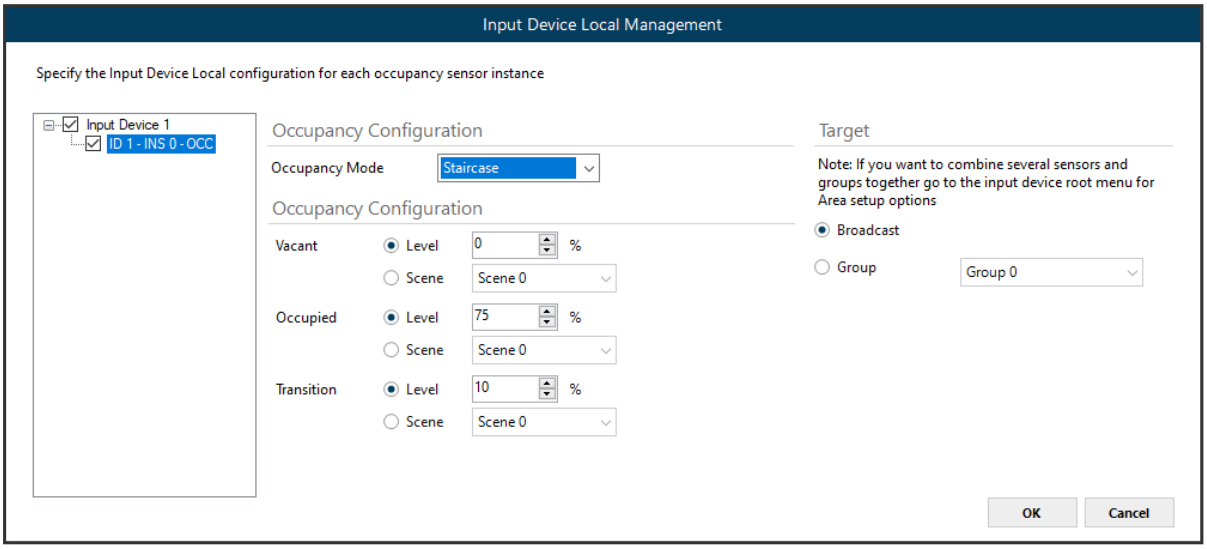


OCCUPANCY SENSOR CONFIGURATION

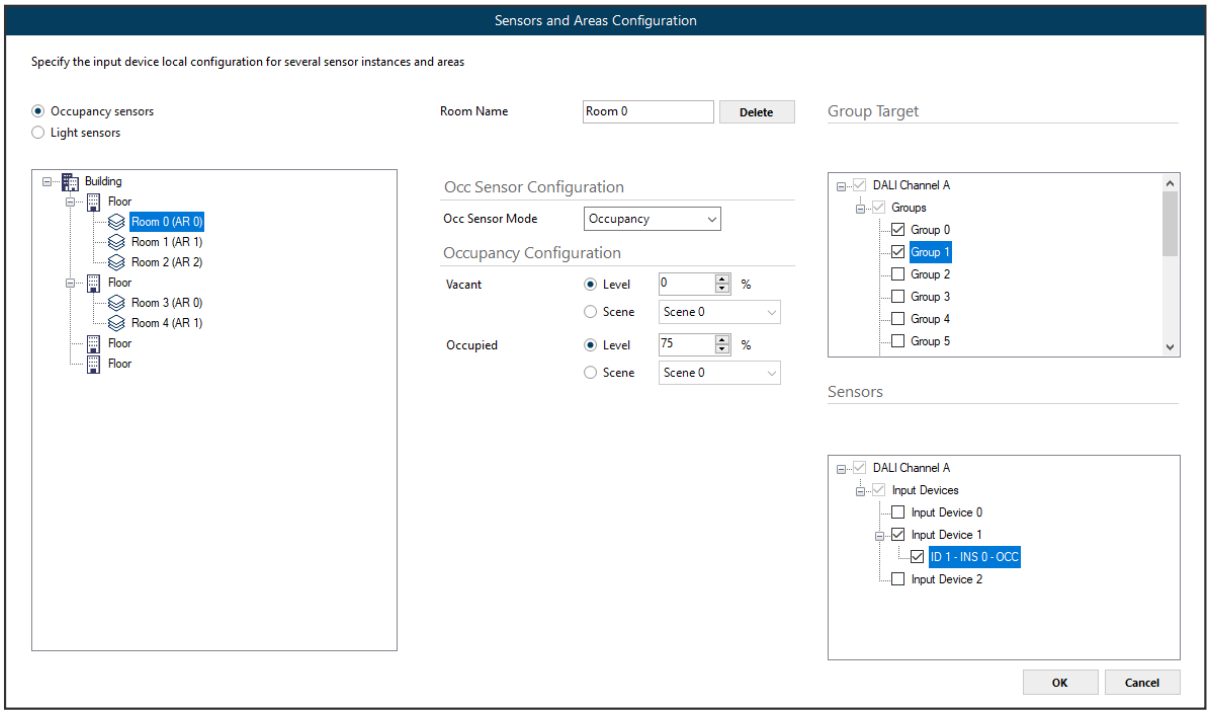
There are three available modes for the occupancy sensor:

- **Occupancy mode:** Lights turn on and off automatically according to movement detection, with no direct user interaction.
- **Vacancy mode:** Lights turn off automatically when the user leaves but must be turned on manually by the user when entering the room.
- **Staircase mode:** Lights turn on and off automatically according to movement detection, with an active transitional light level to let the user know that lights are about to turn off. This transition time is configurable.

Every mode allows for the related levels to be defined or for a scene to be linked to: Vacant for vacancy mode, vacant and occupied for occupancy mode, and vacant, occupied, and transition for staircase mode.

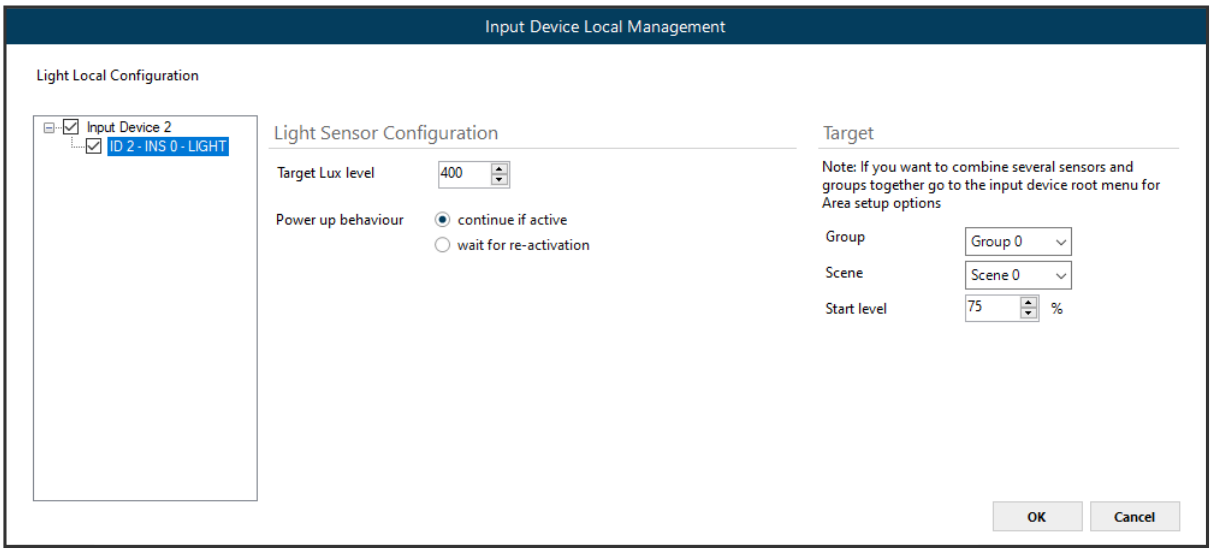


As mentioned above, occupancy sensors can be combined together to define areas. When using this feature, the Sensors and Areas Configuration window allows the configuration of occupancy sensors at room level.

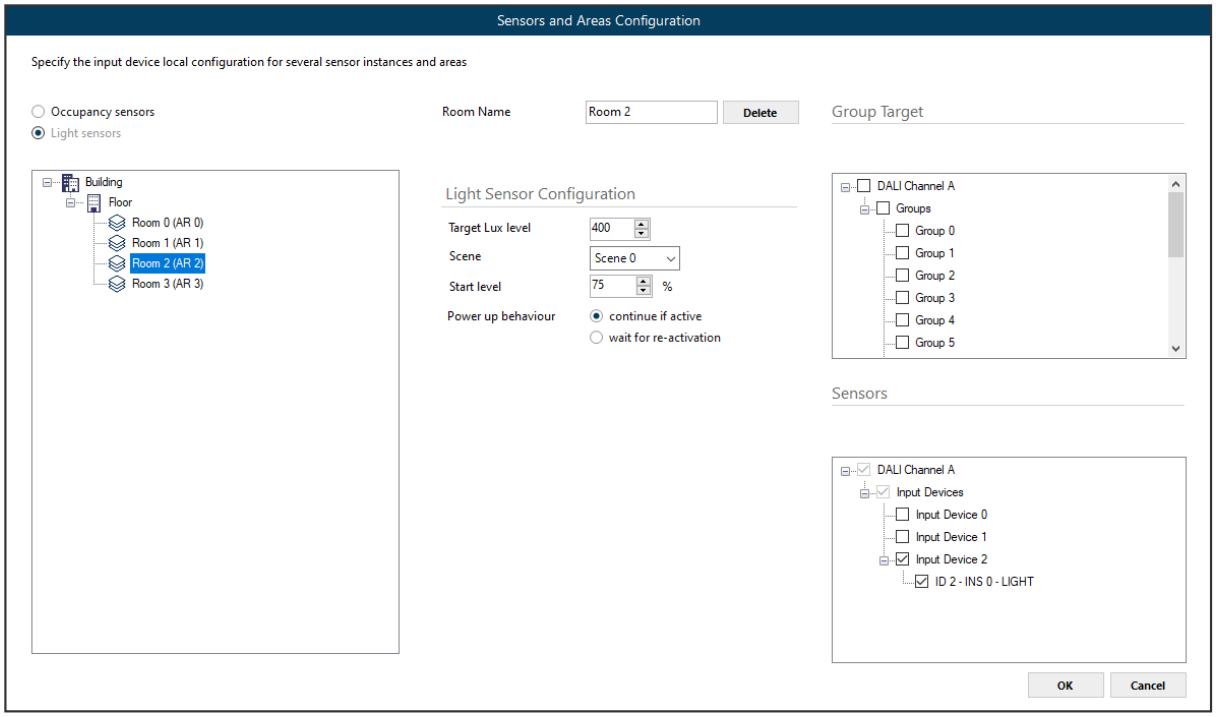


LIGHT SENSOR CONFIGURATION

Allows to set a target lux level that the defined target (a group or a scene) will automatically be adjusted to according to the sensor measurements.

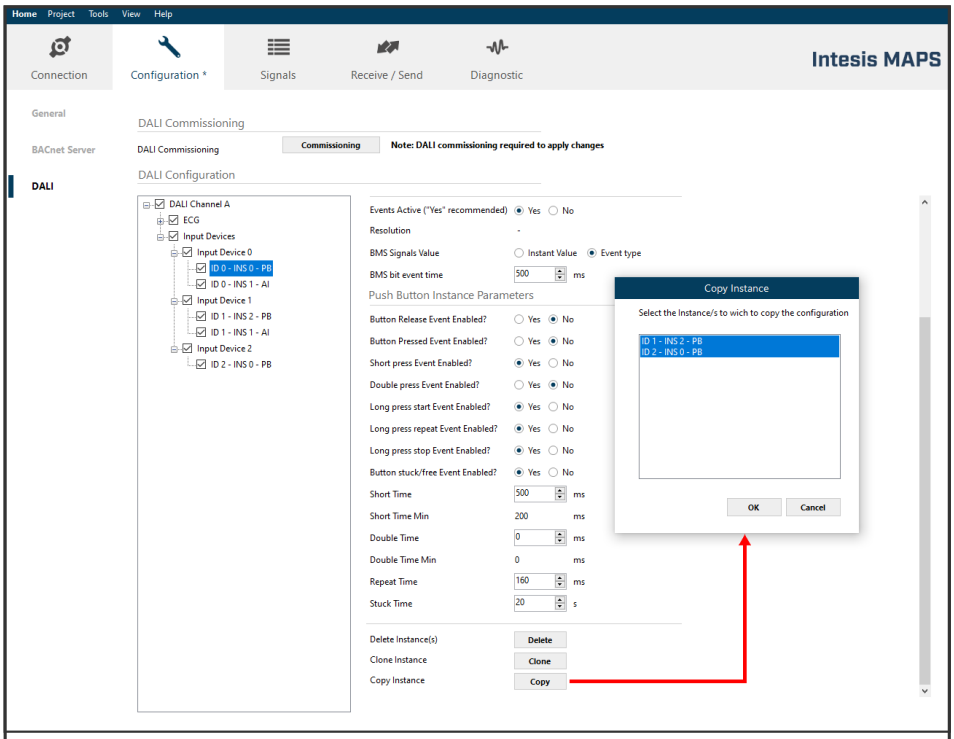


Just like occupancy sensors, light sensors can also be combined together to define areas, so when using this feature, the Sensors and Areas Configuration window allows the configuration of light sensors at room level as well.



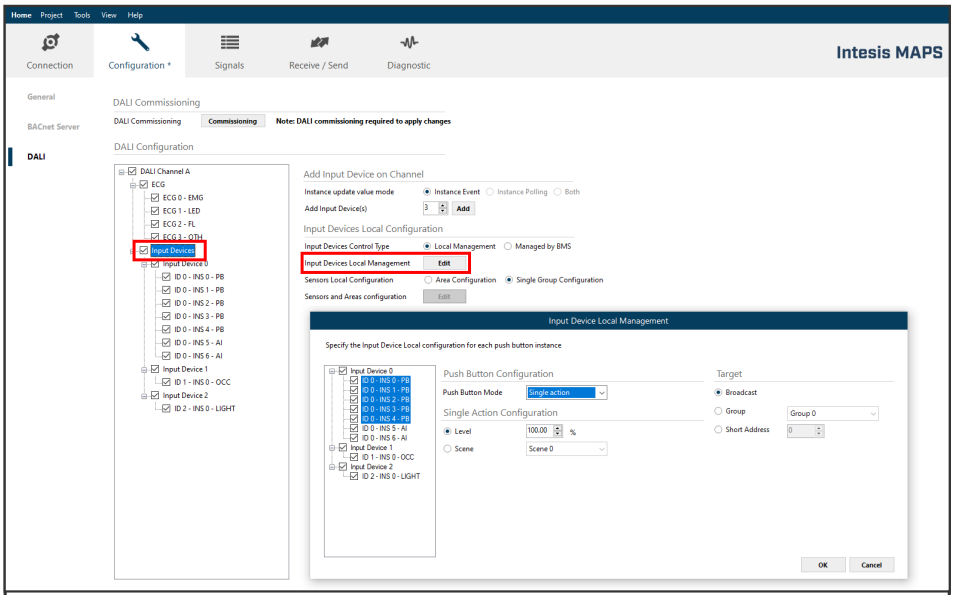
MULTI-EDITING OPTIONS:

In a configuration with multiple input devices and instances, it is possible to copy the configuration from one instance to others of the same type to help speed up the commissioning process. Configuration can also be copied at input device level (this is, the settings of all its instances), as long as the target input device shares the same structure.



Configuration copy, instance level.

Multiple instance management is possible by selecting the Input Devices root from the tree view and clicking the Input Devices Local Management Edit button. A new window will open, where we can click on the instances while holding the shift key to select multiple instances and configure them simultaneously.



Multiple selection of several instances to apply the same configuration parameters.

Applications and case studies

APPLICATIONS:

- Support for DALI input devices such as Push buttons (switches) and Absolute inputs (sliders) in a DALI bus-based installation to allow for manual interaction.
- The response to the switch press can be configured, ranging from basic actions such as on/off to more complex ones like scenes, being also possible to assign responses like dimming or multi-action, with different responses to short presses, long presses, and double presses.
- Support for additional input devices such as occupancy and light sensors, with different modes available resulting in both energy savings and increased comfort.
- Occupancy and light sensors can be configured and grouped to operate together in a defined area, distributed in a three-level hierarchy based on buildings, floors, and rooms.

CASE STUDY:

Assembly Hall – Selective lighting

Problem: A large assembly halls needs different lighting levels for the audience area and the stage, they also need direct control to swap between lighting scenarios as necessary.

Solution: A DALI installation will solve the general selective lighting needs, and the addition of DALI-2 switches to the installation will bring manual control. By setting up the push buttons (switches) to be locally managed by the Intesis DALI gateway, the reaction time from push to action will also be faster.

Office building – Energy waste

Problem: Office workers may accidentally leave the lights on overnight when leaving the building. This results in an increase in costs, waste of energy, and a reduced lifespan for luminaires.

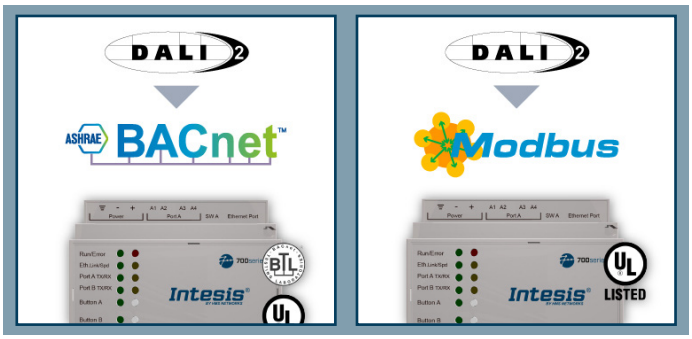
Solution: A DALI installation with occupancy sensors solves this problem, as with the sensors configured to occupancy mode, the lights will turn off automatically when people leave.

SW and HW requirements

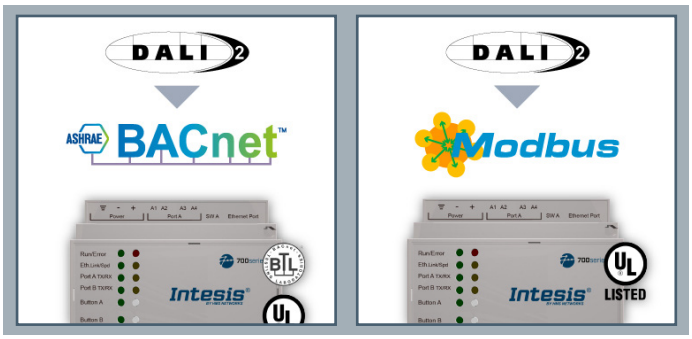
INTESIS MAPS 1.2.10.0 – AVAILABLE FROM 03/11/2023

Part Numbers	Description
IN703DAL0640000	Intesis DALI-2 Protocol Translator with Serial and IP support- 1 DALI channel
IN704DAL1280000	Intesis DALI-2 Protocol Translator with IP support- 2 DALI channels

AVAILABLE HARDWARE



IN703DAL0640000
Intesis DALI-2 Protocol Translator
with Serial and IP support - 1 DALI channel



IN704DAL1280000
Intesis DALI-2 Protocol Translator
with IP support - 2 DALI channels

CONSIDERATIONS – FEATURES

The Intesis MAPS configuration tool software is used to swap between applications for the BACnet and Modbus internal protocols. It also allows the configuration of local management options for the input devices in the installation, i.e., push buttons, absolute input devices, and occupancy and light sensors. Several configuration tools are available to help reduce commissioning time considerably, such as the possibility of cloning control gear, input devices, and instances, as well as applying the same configuration to a multiple selection.

Summary

This document covers how the local control options of the 700 Series DALI gateways support all input device types: push buttons and absolute input instances were already supported in previous models, and occupancy sensors and light sensors have been newly added. After a small overview of the different input device types, more information can be found about how all these input devices can be managed as usual (just sending the information to the BMS) or locally in the gateway, reducing response times and data transmission load to the BMS.

Next, the steps to set up the local management method through the Intesis MAPS configuration tool are also covered, showing the available options and how each input device can be individually or collectively configured, as well as the specifics of sensor configuration, with their corresponding single group and area configuration options. Additional features, such as copy options and multiple selection, are also explained.

Some use case examples of these new features are also outlined, showing how they can be implemented to cover a wide range of needs. Finally, you can find more information on the new Intesis 700 Series DALI gateways, covering the currently available hardware and their corresponding part numbers.